LOUISIANA Conservationist

LOUISIANA WILD LIFE AND FISHERIES COMMISSION

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1968

Twentieth
Anniversary
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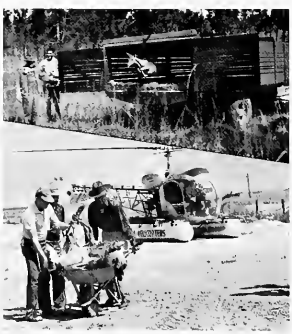
Conservation Pledge

I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country—its soil and minerals, its forests, waters and wildlife

Published Bi-Monthly in the interest of conservation of Louisiana's natural resources by the Wild Life and Fisheries Commission, Peabody Hall, Capital Station, Baton Rouge, Louisiana 70804.



Louisiana has made great strides in its program of restocking areas where deer populations were low or nonexistent. In 1948 the trapping and transplanting of deer was a slow process, but today the Commission employs the use of airplanes, fast boats and even helicopters in its endeavor to furnish more game and sport for outdoorsmen in all parts of the State.

LOUISIANA
Conservationist

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Twenty Years Publishing The

LOUISIANA Conservationist

THIS SEPTEMBER-OCTOBER issue of the "LOUISIANA CONSERVATIONIST" marks the twentieth anniversary of the publication of this magazine as a slick-paper, color-covered, stapled uniformly made-up wildlife magazine.

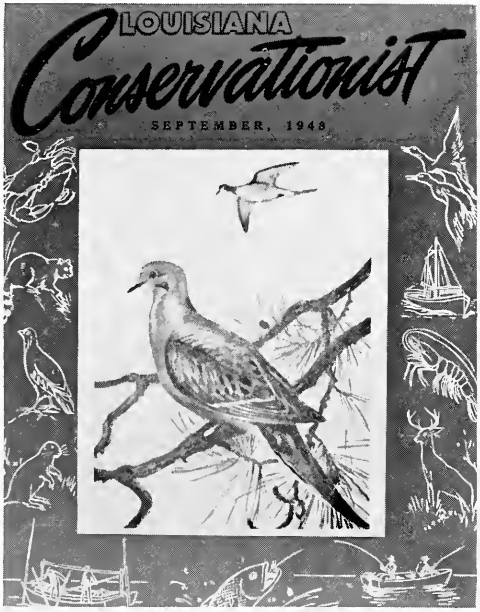
These are a lot of words and mean that in September of 1948 the Division of Education and Publicity issued Volume 1, Number 1, of this magazine and has continued to do so since that date. Its predecessors had been issued under various names and there was once published a house organ called the "Conservationist".

However, the present magazine we read today dates back two decades and during that time its format has been adopted by many wildlife publications of our sister states.

Now, as we delve into the record of the past twenty years, we see chronicles of the selfless work of those dedicated to the conservation movement. Therein are records of many successes and some failures in a long struggle to educate the public as to the necessity for conservation and wise use of our natural wildlife resources.

The fact that the circulation of this magazine has increased from a few thousand unsolicited subscriptions to well over one hundred thousand copies each issue is proof positive that the public is becoming more and more wildlife conversation minded.

Our CONSERVATIONIST has encouraged sportsmen to come forward and offer their hands and



The cover of Vol. 1—No. 1 of the 1948 Louisiana Conservationist depicted the Mourning dove on its cover. Dove shooting is now one of the State's leading sports.

ANNIVERSARY ISSUE

minds in a new era of conservation. It has made them feel that they are really a part of the movement. This has reflected itself in the fact that important sportsmen's groups have rallied round the Commission when it has been attacked by self-seeking interests and when its scientifically trained people have sought the proper protection of fish and game and their habitat in Louisiana.

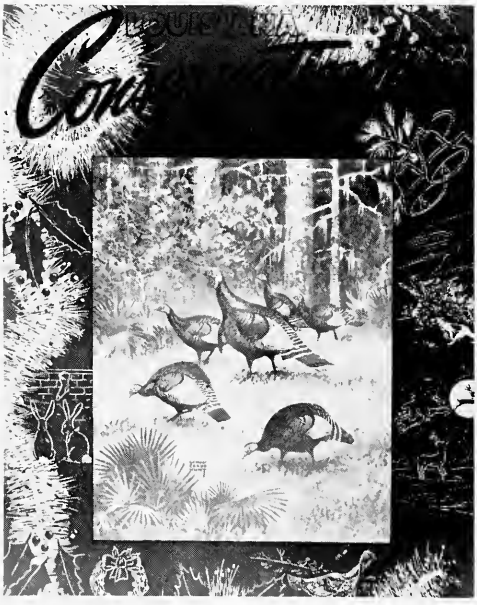
During the twenty-year period the wildlife publication has presented many new ideas based on scientific knowledge. Changes have been made in the administration and operation of this state agency, which is a self supporting branch of Louisiana government. It has spent the sportsman's dollar when dollar value was received. The results have been that its long-range programs have been successful.

Plans for a statewide radio system were introduced and the system, once installed, has revolutionized law enforcement. The old, slow, patrol boats have been replaced with new and faster craft thus minimizing the incident of law breaking. Later airplane patrols with radio communications were set up to work with speed patrol boats and automobiles. With the encouragement of the CONSERVATIONIST public approval for the boat and plane system of enforcement has won out today and its acceptance by the people is taken for granted.

We have barely touched on the subject of enforcement of game laws, since this will be taken up elsewhere. However, let us sum up the early situation as it confronted one of our Commissioners. Said this man, almost a quarter of a century ago, "The State of Louisiana spends hundreds of thousands of dollars each year on fish hatcheries, restocking streams and lakes with game and fish; refuges and reservations for quail, wild turkey, deer, wild ducks and geese; in fact, many varieties of game, fish and fur bearing animals, and then provides and supports enforcement divisions to aid in the protection of these wards of the wildlife and fisheries of the state . . . but, in spite of diligent efforts, elaborate programs of education intended to encourage the public to aid in the protection and conservation of the state's fish and game proteges, the law breaker sets his traps, pulls his seine and even resorts to poison to elude the law and gather to himself a few dishonest dollars." This situation has been minimized twenty years later through the efforts of the CONSERVATIONIST'S continual program of education, and of course, through the many programs for game and fish protection advocated by the Commission.

Now that it is our twentieth anniversary we feel obliged to do a little boasting. The CONSERVATIONIST is no ordinary "throw away organ". No one gets this magazine unless he subscribes through the mail or calls at the main office in New Orleans.

Circulation has been continuously rising. At first it was thought that the subscription list might be thinned out by inserting a self-addressed, postpaid card in each magazine. The situation got worse, the card insertion only brought in replies but also a deluge of new subscriptions. Since the magazine is confronted by budgetary restric-



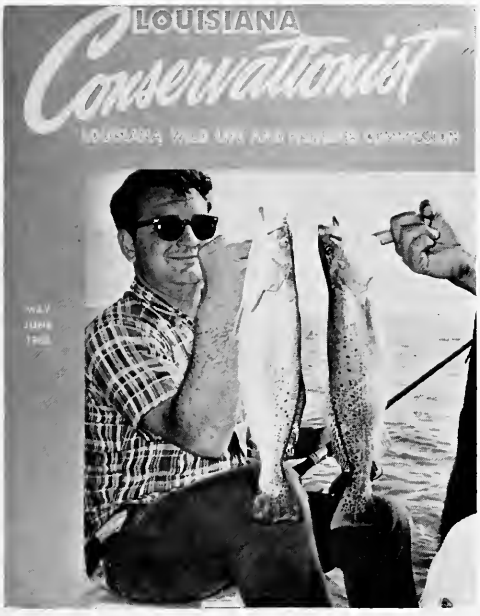
The cover of the December 1948 issue of the Louisiana Conservationist showed the Eastern Wild Turkey. State flocks were few at that time but have been rebuilt in numbers.

The April 1958 cover of the Louisiana Conservationist showed a young boy enjoying speckled trout fishing in inland coastal waters. The speckled trout is a Louisiana favorite.

tions, and because the CONSERVATIONIST accepts no advertisement and is free to all citizens of Louisiana, it was decided that the magazine would be issued bi-monthly, instead of every month. The subscriptions still continue to climb. The situation reminds one of Emerson's old saying. That "if a man builds a better mouse trap . . . the whole world will make a path to his door."

Ability and pride are the hallmarks of any successful endeavor. And perhaps herein lies the answer to the aforementioned. The CONSERVATIONIST has sent its staff writers and its photographers to aid in publicizing many sportsmen's events. The earlier efforts of many of them may be recognized in its back issues and it is pleasing to note how many of them have become giants in their field of endeavor. To cite one of the many, the Grand Isle Tarpon Rodeo has become an event of worldwide interest.

Several months ago the mailing of the CONSERVATIONIST was shifted from New Orleans to Baton Rouge and goes out on IBM tape label mailing direct from Baton Rouge. The change was instituted in order to expedite the mailing of the magazine and getting it into the hands of readers as soon as possible following printing. Reprints of the articles appearing in the CONSERVATIONIST and special pamphlets have been printed for distribution through the main office, the office in Baton Rouge, district offices and upon written requests. Fishing and hunting regulations revised each year are also published in the CONSERVATIONIST.



The May-June issue of the Louisiana Conservationist showed speckled trout fishing which has continued to be one of the most popular sports in coastal bays, bayous and lakes.

A glimpse within the pages of the CONSERVATIONIST will show that for the past twenty years the publication has formally fostered every movement for the betterment of game and fish management. Refuges have spread from the great wild waterfowl preserves of the Gulf Coast to every corner of the state and the Commission is purchasing more lands for permanent preserves, each acquisition has been heralded in the editorial and news columns of the CONSERVATIONIST. Owners of lands and those who have offered for lease at token fees have been publicized, thanked, and otherwise praised for their farsightedness. This has encouraged others.

Big game fishing clubs, skeet shooting and retriever clubs have mushroomed under the fostership of the Commission and the CONSERVATIONIST. The publication continues to foster any movement that is advanced for the improvement of wildlife in the state.

Young people's groups have not been left out of its columns and look to the magazine to record their achievements. Concentrated in waters out of South Pass are the big game fish.

During the past decade the CONSERVATIONIST has encouraged the formation of big game fishing clubs aimed at promoting Louisiana salt water fishing at a national level to encourage and foster tourism. A list of charter boats, their locations and names of their operators is available at the main office on Royal Street in New Orleans.

The influence of pollution in estuarine and immediate outside waters has been continuously publicized for the past two decades in the CONSERVATIONIST columns. The Commission's Water Pollution Control Division's activities are publicized at every opportunity.

Problems of the shrimp and oyster industry are constantly in the limelight in the magazine and the plight of the Brown Pelican in Louisiana is being followed closely as is every activity coming under the scope of the Commission. For once in our successful operation we have to admit our limitations. Namely, the "activities" of the Louisiana Wild Life and Fisheries Commission and the CONSERVATIONIST would take volumes to enumerate, let it suffice to say to ourselves and our readers, 'Happy 20th Anniversary.' ✠

Wildlife Shorts

If you have wondered why Louisiana's famous green head fly is able to dive on you and get away before you can swat him; according to scientists it has more than ten thousand facets in its eyes which aid it in evading your counter-attack and the formidable stinger that it plunges into your skin on contact whether you be on the beach sunbathing or fishing off Louisiana's salt marshes.

The Brown Thrasher, often erroneously called "brown thrush" is a common permanent resident of Louisiana although, of course, in the winter the population is greatly augmented by migrant birds from further north.

Conservation of Yesteryear

Hermann B. Deutsch

THE YEAR WAS 1916 and Woodrow Wilson was about to be reelected President. His supporters rallied around this slogan: "Thank God for Wilson—he kept us out of War." Britain and France had been fighting that war for two years, Russia was on the point of concluding a separate peace with the Central Powers, as a prelude to the Bolshevik revolution which would end the Romanoff dynasty's 300-year rule.

President Wilson was again inaugurated in March of 1917. Having kept us out of war, he asked Congress within the month, to declare us into it and 19 months later the war was over, as the Kaiser abdicated and fled with his family to Holland. The rest really *is* history.

The war brought on a few civilian dislocations. There were meatless Wednesdays, I think; and wheatless Tuesdays; coal was rationed but it is my impression that gasoline was not. I had not owned a car prior to that time. Very few newspaper men did, even on salaries running to as much as $30 a week in New Orleans, where Don Higgins and I had cast anchor in 1916—I think it was on the 28th of April. Neither he nor I had ever driven what was sometimes playfully referred to as an "automobubble."

Theretofore I had never been much of an outdoorsman, except on ecological field trips in connection with my university work, had never even owned a shotgun or a "boughten" fishing rod. But here in New Orleans, free and independent on my salary of $25 a week from the Times-Picayune, and Don's $20 from the Daily States, we could lead almost princely lives. I suspect that more New Orleans families got along quite well on less than $45 a week than received more. Bear in mind there was no such thing as an income tax, a sales tax, an amusement tax, or a gasoline tax in that gentle era.

Consequently when Senator E. M. Stafford arranged for me to accompany one of his brothers-in-law on a fishing trip, I went unschooled, unequipped with anything but a fresh and youthful curiosity. We went by car to Peter Youngblood's store in Yscloskey, and then in a skiff with inboard motor through various bayous, canals and lagoons to Ritter's camp at the entrance of a channel that led into Lake Robin (pronounced Roe-bang as I learned later until I was informed with some heat by another orthoepist that the correct pronunciation was Lake Robb'n.)

We had a paper-wrapped package of not too recently deceased shrimp for bait, and handlines for tackle. I was just as unschooled in this type of fishing as in any other, and failed signally to distinguish myself. But was no end impressed by the total poundage of speckled and white trout

Conservation took a great deal of selling to put across. Early violators took an enormous toll of wildlife. Here, an early agent shows confiscated shotguns and dozens of illegal squirrels.

the party landed, and even more impressed later when I tasted my first spotted weakfish, locally known as a speckled trout.

There was no conservation commission, then. M. L. Alexander was conservation commissioner and Col. Will Holmes was head of his enforcement organization. Between them they appointed what Huey Long later scornfully described as "squirrel counters and possum watchers". But through the probabilities inherent in sheer numbers, every now and then an excellent game agent crept in, like Johnny Folkes of Houma, who covered Terrebonne parish like a new and tight suit of non-woolen underwear, and haled offenders into the district court before Judge Robert Butler; the more political weight they carried, the better he liked to present them at the bar of justice.

Utterly fearless, he confronted a law violator on the raised walkway to the latter's swampland cottage, whose owner charged at him with a gun. Johnny retreated cautiously, step by step, while reaching for his own pistol, stepped backward into space off the raised walk, fell to the marsh below, but from a supine position shot and killed his would-be attacker. On one occasion I was with

him on his boat, the Opelousas, when he went out to the oyster beds in Terrebonne Bay to arrest a boatload of five oyster pirates, who were poaching on some one else's state lease, looped a hawser over their bow cleat and thus hauled them ignominiously the full length of Bayou Terrebonne to Houma, for all the world to see.

Game was still plentiful in those days. Honey Island, the expanse of swamp—not marsh—forest between the east and west branches of the Pearl River debouchure, was almost primeval, especially in its population of wild turkeys, squirrel, deer, and an occasional bear. In Iberia, Ned—Edward N.—McIlhenny, no more than 20 years or so returned from a winter well north of the Arctic circle, and now settled with his bride as the master of Avery Island, one of six or seven salt domes along what had once been the Louisiana sea rim, watched over his 6,000-or-more acre barony very carefully. An early advocate of conservation, he had established here the first bird banding station on the North American continent, and a heron preserve which saved the North American snowy egret from extinction at the hands of plume hunters. He also plumped before the legislature for a real conservation department, in which commercial and sports activities were severed for administrative purposes from one another, especially in so far as inanimate resources like, oil, gravel, timber, salt and sulphur were concerned.

He finally carried his point. A draft conservation bill that had his approval was adopted in the early 1920s, over the clamorous objection of many citizens who argued that it was all right for a rich man like Mister Ned, him, who had land and money enough to provide all the hunting and fishing he and his guests wanted, but what about the poor man who hunted only to provide meat for his family's table? Market hunting was finally outlawed through a migratory bird treaty with help from the federal Interior dept.'s treasury and enforcement personnel.

I recall that in the 1920 state campaign, in which I traveled with Governor John M. Parker over a state which had few roads of any kind, and practically no weatherproof highways, we used for transportation railroad spur lines, Model T Fords, frequently referred to as "flivvers"; and where no other mode of transportation was available, larger automobiles, hiring mule teams to pull us out of mudholes as our cars sank into them. I recall one stretch of "highway" between Shreveport and Doyline, where we sank into a mudhole that seemed bottomless, especially when the first team of mules we hired promptly were mired to their bellies and had to be pulled out by a second team of mules so that the united efforts of the quartette of quadrupeds could extricate our car.

We were mired on one occasion, believe it or not, on the main street of Natchitoches one night, just before the big meeting of the evening. There was no time to lose, so I picked up Hewitt Bouanchaud, Mr. Parker's candidate for lieutenant governor, and sloshing recklessly through the mire between us and the paved sidewalk's curb, depositing him there, speckless but apprehensive. He was really worried lest the fact that he had let himself be carried to keep from muddying his shoes be used against him in the campaign.

I have dwelt perhaps overlong on the conditions of Louisiana's rural roads in the early 1920s, but I had a valid reason for doing so. They made travel between the populous cities and sparsely populated rural areas so difficult, that week-end trips to game and fishing spots were next to impossible. Even travel to such near New Orleans points as Bayou Sauvage or the Chef involved a Sunday morning prelude by the pious to Our Lady Star of the Sea church for a special 3 a.m. Mass which had been sanctioned by the Vatican, then a rush to the L&N station to catch the 3:45 fishermen's special, a debarkation at Micheaud (as it was then spelled), the Chef, Lake Catherine or the Rigolets. It also entailed cutting short the day's fishing in time to catch a return train for New Orleans. The combined effluvia of dead fish and unwashed male bodies in a jam-packed and window-tight daycoach on a sultry August evening was and is even today an ineradicable memory. The windows had to remain closed. Otherwise the mosquitoes would have devoured us—and today even the wooden day coaches and the commuter trains have disappeared!

When we had left the train at Micheaud station before dawn, we had to walk perhaps a hundred and fifty yards to the house of our mutual friend—Arthur Van Pelt's and later mine—Henry Hooks, who made his living as a swampman, selling alligator skins, frogs, turtles, and other such gourmets' delights, working for the railroad and—I greatly fear—doing enough poaching to keep his brood in meat the year 'round.

I say this because there was always a savory dish of pot roast on the breakfast table to which every one tactfully referred as beef, and because during the waterfowl season there were always several braces of mallards—canards frañcaises—and canvasbacks, pintail or teal hanging in the screened larder. After all, it was a matter of only a few years since the open sale of ducks and coots was licit, and when one saw hunters walking the downtown streets of New Orleans with a brace of widgeon or whatever, draped over the barrels of the fusil they carried over one shoulder.

There were at that time still sections of what is now New Orleans East where no man except an Indian trapper had ever set foot. I have stood on the raised walkway around Henry Hooks' house and watched a wood duck bring out her newly hatched brood, one at a time, from some hole in a dead tree where she had laid the eggs and brooded and hatched her babies. While she was fussily maternal over these finest (and anything but ugly) ducklings the world had ever seen, she was glad the long chore was over and

done with at last. Having freed them, she swam proudly at the head of her cadre of offspring, leading them through a blanket of duckweed that parted to their passage, revealing the black swamp water beneath.

From that same spot one could see a forest of stark dead cypress trees, that must have fallen victim to burial by mud in some long-forgotten overflow, or series of overflows, by the mighty Mississippi, each of which deposited its load of rich and fertile silt to a height of eight or ten feet, which would be enough to kill the cypress trees in one of which an American bald eagle later built his nest. I saw him (or her) once, flying toward the nest with a partially eaten duck clutched in his fierce talons. He and his mate remained in residence there, it must have been a dozen years, but one of Betsy's elder sisters finally blew down the old tree, nest and all, and the birds moved to some more remote forest setting.

I had graduated to a fishing pole (not yet to a "rod") by that time; a light, strait bamboo cane and a line, but no reel. My equipment also included a newspaper wrapped three pounds or so of "market shrimp," a whole 15 cents' worth, getting higher by the minute. But a hook baited with a bit of shrimp and dropped a short ways out from the bank was sure to get either a definite strike or a swirl. It was the part of wisdom not to let the basket get too heavy to tote back across the tracks to the Hooks' home, where the perch could be cleaned, scaled and gutted, the plumbing being left on the grass, where an increasing pride of cats waited for this boon, and ate themselves asymmetrically distended being less avid for nourishment than spurred on by competition to make certain no other cat among those present took unto him—or herself—too great a share of the dole.

One could catch small to medium eating fish almost anywhere in any waterway in which the aqua impura had more depth than one could find in a film of dew. Where there were no bream, perch, or mudcats, there were croakers, small striped bass, gaspergou, and undersized black bass, known locally as green trout.

There were also "cypress trout" in the swamp ponds, especially as these diminished in size and depths during the late autumn droughts. More commonly known as grindle, grinner, bowfin, or in the 'Cajun countryside of south central Louisiana, as choupique, this fish is to many, all but inedible. My friend, the late Mason Spencer of Tallulah, once declared that eating a choupique was like chewing mouthful of cotton in that the longer one chewed, the bigger the bolus seemed to grow, and that "this was probably the physical basis underlying the miracle of the five fishes that fed an entire multitude; they must have been choupiques."

It was Mason who initiated me into the mystique of fishing for grinners the dry months of autumn. The procedure was a novelty, otherwise I would not have exerted myself knowingly in pursuit and capture of such quarry. We used no hooks, no rods, no lines and no bait. Our outfits consisted solely of hoe-handles, to the basal end of which a 20-25 foot length of clothes line was attached, while an ordinary trident head of iron, its three prongs filed to brief sharpness was riveted firmly to the distal end.

The technique of using it was simpler even than its mechanism. Holding the free end the clothes line firmly attached to, or looped around, the wrist, one stood at the edge of the pond, amid a welter of deer, wild boar, raccoon and rabbit tracks, and cast the heavy, clumsy hoe-handle spear as far as possible in the general direction of Guyaquil on the western (Pacific) coast of Ecuador. If nothing happened, one retrieved the hoe-handle, and did it all over again, and again, and again and again.

One could not go wrong "technique-wise" as the

A scene from yesteryears. Trappers and early commercial fishermen lived in crude homes in distant parts of the bayou country. A cluster of homes such as this provided shelter for grandparents, parents and grandchildren.

saying goes nowadays. The iron trident, having a much higher specific gravity than the ash-wood hoe-handle, necessarily flies ahead of the wooden member, and is first to sink, striking the fine-points down with the considerable weight of the thick hoe-handle to add heft to the force of its descent. Just as one asks oneself: "Can this be all there is to it?" the handle, part of which projects above the pond's surface, begins to jerk and wobble wildly, but remains in situ. This means a choupique has been pinned to the mud bottom of his home away from home, and is now all set to be hauled in rather languidly and transferred to the wet sack which doubles in jute as an Abercrombie and Fitch proper creel.

To balance the good and the bad, it was too late, though not too much so, that I learned about fly fishing from Dick Leche, then in his first year as governor. We were due to attend a meeting in Pointe Coupee parish whose principal topographic feature is an enormous ox-box lake, a cut-off horseshoe shaped curve what was once a great stretch of the Mississippi's main bed. It is now a lake closed off at both ends, and at times it literally swarms with bass, paddle-fish, catfish, bream, and freshwater mullets.

When Governor Leche invited me to accompany him to the meeting and promised to make some statement that would be newsworthy enough for a dispatch back to New Orleans, he offered as added inducement: "We can leave Baton Rouge kind of early and get in some late fishing in False River. I don't reckon you've got your fly fishing tackle up here?" I told him I could do better than that, as I had never cast a fly, and didn't have "Thing One" of whatever no fly fisherman can do without.

So we purchased a 12 dollar fly rod, a dollar-and-a-half reel, some black gnats, a fly line, and a cheap jappanned tackle box. That started me on the downhill road to ruin along the route whose descent is measurelessly easy. I caught a few misses-and-children's size sunfish, put a permanent "set" in the upper joint of my $12 rod, got my feet, both hands, and—believe it or not—one ear tangled in the loose line between casts, and came away with a raving passion for fly fishing which is still tightening its hold on me and I am in my eightieth year.

I have learned to design and tie my own "flies", which are really bass bugs, cork bodied to assure a permanent flotation, and I look with scorn on bait-casters, spin casters, wet-fly fishermen and you name it. What's that? How about fishing with live minnows? Please, now, Wilberforce! We've just come from the table.

Most of the good spots are privately owned these days, and good roads did it. Louisiana is criss-crossed, cable stitched, zig-zagged and bobbinetted with parish, state, and federal highways and super highways, over which fishermen think nothing of scuttling 150 miles before dawn on any free 24-hours of today's five day work weeks, fishing till dusk, and happily skull dragging their weary way back home again. Believe me,

Early fur seasons also saw their share of violators. Here, agents of the Conservation Department hold confiscated mink pelts that were taken from trapping violators.

if they can find good fishing water in a 150 mile radius of where the heart is, they're lucky.

To be sure, they can always get to Grand Isle or the Mississippi Gulf Coast, The Chef or the Rigolets, from New Orleans, and rent a skiff to bait fish for croakers, redfish, flounders, speckled and white trout, sheepshead, drum, bluefish, channel mullet or the like. These all make excellent eating and finally, there are times when, like the crooked gambling den, they're the only game in town! And here's a secret which must have been revealed to me by my best angel, which is why I'll share it with you. Don't scorn the gaff-tops'l salt water catfish. Do not, I beg of you, turn up your patrician nose when his name is mentioned. Properly treated, he makes as fine a filet as you'd ever care to ingest, almost as delicate as the smoked *Rheinlachs*—the Rhine river salmon of Europe than which there is no thanwhicher. One of these days, when Steve Harmon and Edouard Morgan manage to creep up on my blind side again, I may be persuaded to spell out the procedure for you.

In short, I feel that our grandchildren will be describing the present as "the good old days" to their grandchildren, unless the Great Discovery has again been made, and they are comfortably settled amid the virgin pastures and forests of some G-type planet with an oxygen economy, circling sedately about a Sol-type star; a planet where all the seas are full of fish, crabs, lobsters, abalone, gastropods, clams, scallops, shrimps, whales, walruses, seals and other cetaceans.

No doubt, their grandchildren's grandchildren in turn will talk about the good old days when all the best forests and grasslands were not under fence, and a man wouldn't know how to starve if he had a mind to try. I remember . . . . there I go again, reminiscing like countless generations of my forebears have done ahead of me, and countless generations of my family's descendants will do in centuries yet unborn.

This thing of which I was reminded occurred in March of 1920. We were preparing to leave San Antonio for Los Angeles, and were, so help me! the first tourists to go out along the Davis Mountain section of the Old Spanish Trail. We regarded ourselves as seasoned veterans of the Hobohemian Trails, and so decided to lay in dry groceries, but depend strictly on ourselves for fresh meat which under the circumstances would also include fish. I had a small steel casting rod and reel, but had been advised to lay in a supply of artificial lures, as fresh bait might be hard to come by in the desert-like ambiance of southwest Texas. Our last outpost for laying in provisions was a town whose name I have forgotten, recalling only that it billed itself as the capital of the Wolf River Valley.

There I bought one (1) Dowagiac minnow, and thus fortified against the wilderness we set out, circling around the town of Roosevelt, which I understood was mostly on paper; and winding up at a boulder-strewn camp site on the banks of the North Llano river. Don left almost at once with our .22 rifle in pursuit of what he said was a pheasant.

I busied myself with assembling my casting rod, reel and Dowagiac minnow. Having done this, I made one bumble-puppy cast, which surprised me by actually getting away from the section of bank where I stood, spent the next ten minutes or so un-scrambling the backlash horror on the reel, but finally cleared it and began to reel in.

I was moodily wondering what I would do with a waterhaul if Don returned with his pheasant, and at that moment the biggest bass I have ever caught grabbed the Dowagiac and started for the Rio Grande, into which I assume the North Llano finally empties. I am still a bit hazy as to what happened next. I recall that at one point in my time continuum, the reel unseated itself, and spun down into the river somewhere below my foot-rest. I also know that I retrieved it, laying down my rod and leaving the big bass to shift for himself while I re-seated the reel.

He must have worn himself out in a futile struggle against the fates, for he came docilely to shore as I reeled him in, and ecstatically, slipped a jury-rigged stringer through his gill plate and mouth, before staking him out to a sturdy peg driven into the bank.

"Well, I've sure done my part," I exulted, and then it occurred to me that there must be other fish in a rarely visited river which had so richly rewarded my first and so far, only cast. "This time," I said to myself, "I'll make a *real* cast." Drawing back my good right arm I brought it forward with a fly-swatter action that might have demolished a bridge pier; a reasonably small one, that is. The Dowagiac landed in the upper branches of an alamo tree in whose shade I was standing at the time. Tugging and jiggling the line gently failed to dislodge it. I lost my temper and jerked, the line parted, and our one and only Dowagiac slid off the opposite side of the branch, and plummeted into the river, only to sink and disappear.

Don returned about that time, reporting he had chased that particular pheasant all over the Wolf River valley before losing sight of it, but en route back had slain, gutted, skinned and dressed one (1) cottontail rabbit.

There was peace along the banks of the North Llano that night; peace, underdone sections of bass, slightly charred serving portions of cottontail, and strong New Orleans coffee. Having proved our mettle by providing an abundance of fresh meat we decided we would not have to do it again—ever. ✠

1968 National Hunting Highlights

John Madson

THERE'S A LOT OF good hunting coming up, with state game departments reporting abundant crops of all major game species.

Deer prospects appear even better than last year, with good to excellent mule deer and whitetailed deer hunting expected nationally. New York State biologists report an all-time high in whitetails after four mild winters, and predict a record deer kill this fall.

Western biologists predict generally good hunting for antelope, elk, mountain goat, bighorn and moose, all of which show some increases.

Bobwhite quail are reported in good to excellent numbers in their southern and southeastern ranges. Arkansas reports as many quail "as it is possible to have with present land use." The midwestern pheasant states report excellent quail populations.

Good midwestern pheasant hunting is forecast for Kansas, Nebraska, South Dakota, Iowa and Wisconsin. In the East, Maryland, New Jersey and Pennsylvania have excellent pheasant crops.

Ruffed grouse prospects are good in the Lake States, with Minnesota reporting the highest spring drumming counts in a decade. Eastern grouse have had scattered nesting success because of spring rains, but good grouse numbers are reported in most eastern states.

INTERPRETING THIS FORECAST

The August 1 deadline of this survey found many state game departments with incomplete information on current game crops, and with some hunting seasons still not set. However, enough information is available to make estimates on the basis of spring game populations and reproductive success.

Each state's hunting prospects are rated excellent, good, fair or poor, according to that state's own standards of abundance. What is a

(Continued on Page 14)

From Eight Million Muskrats

The Fur Industry in Retrospect

Ted O'Neil

MANY THINGS have happened to our fur industry within the past 20 years or so, most of which have tended to eat away at the very fiber of the industry's supporting strength. Final results are manifest in a quick glance at these statistics:

Type of License	1947	1967
Fur Dealers	40	21
Fur Buyers	263	128
Trappers	12,000	3,088

This great decline in the participation of the State's fur business reflects the comparable decrease that took place in the number of muskrats inhabiting the coastal marshes. A number of accompanying and important ecological upheavals were brought on by a series of events starting with the great muskrat population densities of the middle 1940's. A peak take of over 8,000,000 muskrats was recorded for two consecutive seasons in the middle and latter part of this period.

Such a population churned all of the prime muskrat habitat into a soupy mass of decaying vegetation. Surface water and salinity fluctuations were no longer controlled by the hundreds of miles of meandering bayous and dense stands of vegetation. The natural levees were so perforated by muskrat burrows and trappers' access trails that their supporting and contributing functions, so essential to the overall delicate edaphic balance that produces muskrat food plants, were no longer effective.

The great peak of the combined seasons of 1945-46 and 1946-47 produced a total of 14,367,175 marketable muskrat pelts. It would not be a miscalculation to assume that over 30 to 40 million muskrats had been chewing away at the very foundation of our marshes during that 24-month period. A muskrat is an excessive and wasteful eater, consuming the equivalent of one-third his body weight each day. This was the climax of the 7 to 12 year peak-to-trough type of production that was considered normal for the Louisiana coastal muskrat.

THE NUTRIA PHENOMENON AND DILEMMA

The thirteen animals imported from South America in 1937 and handled by E. A. McIlhenny of Avery Island, Iberia Parish, located just a little westerly of the center of the coast, were cared for in pens as a nutria ranching experiment, with no intention of allowing the animals to be released into the marshes. However, when the pens became crowded, the animals began to escape and the venture was finally abandoned when a storm destroyed the large holding pen, releasing over 300 nutria.

In 1948 trapping in the marsh meant muskrats, with a few mink and raccoon.

The first well established colony became apparent by 1942-43, thirty to forty miles West of Avery Island in the strictly fresh water White Lake marshes, a type of habitat with stable water levels, containing an abundance of saw grass, roseau cane, bulrush, cattail, with some yellow cutgrass and alligator grass. This was the type vegetation that nutria were accustomed to and apparently their preference. The stable water levels and tall vegetation afforded the most desirable habitat requirements for the well being of this furbearer.

During this early period, little was known about the nutria, and the method of skinning and preparing the pelt for market, since no market had been established. By making inquiries of the New York dealers, it was found that one major firm with a standing of several generations had been established in New York, primarily for the business of handling South American nutria pelts. Several of the western Louisiana buyers had been informed by this firm that a first grade, 26 inches and over in length, was worth about $4.00 to $5.00.

Our records show that in the 1943-44 season, 436 pelts reached the market with an average price of 50 cents to the trapper. This of course was just for the purpose of giving the trapper something for his trouble and doing a little speculation on the New York market. The following season, 1944-45, a few local buyers had picked up 902 pelts for speculative purposes. One of our Louisiana dealers, who had over many years led the fur industry in the State so to speak, made the decision to control this new fur by making an effort to prevent New York dealers from becoming established locally.

In the 1945-46 season, this Louisiana firm accumulated the entire take of 8,784 nutria, at a price of $5.00 each. This company continued to stock-pile at similarly high prices and make inquiries into outlets for Louisiana nutria, up through the 1951 season. By this time the fur and land operators throughout the coast were making a frantic effort to purchase live nutria from the Vermilion Parish area for transplanting into their marshes. In keeping with this nutria fever, the Fur and Refuge Division of the Wild Life and Fisheries Commission transplanted the first 250 animals to the Pass-a-Loutre Public Shooting Grounds located in the heart of the active Mississippi Delta.

Our records show that in 1950-51, 78,422 pelts were marketed at an average price of $4.65. There was a mad scramble by a number of promoters throughout the United States to purchase live animals from local trappers for resale at fantastic prices, some of which later made headlines in fraud and tax investigations. Hunting clubs throughout the State with aquatic vegetation problems in their ponds and lakes, played a part in the rapid spread of nutria by stocking them for weed control.

The day of reckoning came, however, as far as the fur trade was concerned, following this 1950-51 collecting season. The Louisiana fur trade was informed that just about everything was wrong with the Louisiana nutria pelts. First, they had not been properly skinned and scraped. The nutria has a muscle sheath that remains on the underside of the pelt when skinned in the same manner as a muskrat. This muscle and fatty tissue, if allowed to remain on the pelt, causes grease-burns and fur slippage in processing; secondly, the nutria was not properly put up by the trapper. Pelts were stretched over all types of odd shaped molds for drying purposes. The grading by the buyers was not refined; the "put up" of the bales by the dealers was a far cry from the requirements demanded by the New York and European nutria trade. It was found that the top grade western Louisiana nutria pelts were of fine quality and excellent color, even superior to the South American fur, and worth in the neighborhood of $8.00 per pelt after dressing. These pelts represented only about 20 percent of the stock the dealers had bought, however.

Needless to say, there were quite substantial losses, the Louisiana dealers carrying most of the load monitarily; plus the loss of friendly relations with some of their best New York and European customers. At this point, nutria took on an entirely new perspective. The "gold rush" was over; the participants had to settle down to reality in solving every detail pertaining to this new fur animal.

Nutria continued to spread and take over the choice muskrat-producing habitat, and also became a problem in the rice fields. Population movements were primarily westward from Avery Island. It was theorized that the prevailing easterly wind on the Louisiana Coast tends to lay vegetation westerly, and also causes a westward movement of currents in open water. A man walking in dense vegetation in the marshes will drift to the West if not using a compass or check-point.

Two pipelines transecting a natural bayou at the extremities of one of the abandoned Mississippi River distributaries. Dams are necessary at such crossing to prevent changes in the normal ecology of the marshes.

The resident animals—mink, otter, raccoon and muskrat—were putting up a life and death struggle to reject this intruder from their habitat. Muskrat nests were no longer an indication of the number of inhabitants in a marsh. The nutria is a strict vegetarian, but found the muskrat nest to his liking, and a place for resting out of the water, without having to build his own makeshift nest. The nutria so disturbed the muskrats that young litters were left behind, and new nests constructed, only to be taken over by nutria again.

Strife between nutria, otter, mink and raccoon caused the animals to be so scarred and cut following the invasion of the nutria that their pelts became practically worthless in some areas. The trappers and operators of marsh lands had to find a way to continue in the fur business, since nutria was about the only species of furbearer found in suitable numbers from Avery Island to Galveston Bay, Texas. The Vermilion Parish Trade School initiated, with the cooperation of the Wild Life and Fisheries Commission, a coastal-wide educational program in skinning, handling and grading pelts. Even at this, the finest area pelts could only bring the trapper about $2.00 round.

He was quick to learn how to grade in the field, leaving behind the animals that were not of proper size and quality; realizing, too, that he could properly handle only about 25 animals a day. The dilemma came when the land operator and owner realized there was a much slimmer margin of profit to be made. The trapper could not give the same percentage on the nutria as had been customary on muskrats. A trapper could handle 100 to 125 muskrats at the same expense, time and effort as it took to handle 25 nutria. Muskrats could be produced on a piece of marsh over an extended period, at 3 to 4 per acre, whereas one animal to 3 or 4 acres was the absolute maximum for nutria.

Two of the most intensely trapped and managed properties, one tract of 150,000 acres in Vermilion Parish and a tract of 155,000 acres in Cameron Parish, were completely leveled by nutria, with peak takes of marketable pelts in the 60,000 to 70,000 figure, after which came sharp drops in production accompanied by poor pelt quality due to the lack of food supply.

The active Mississippi River Delta, comprising of about 350,000 acres with unprecedented growing seasons, also went to pieces by 1956-57, as a result of the 250 nutria transplanted there in 1951. There was a gradual rise from 1951 to the peak in the 1955-56 season, when nutria were everywhere with vegetative cover still standing. By the following season, only the pass banks appeared to be holding the delta together.

This was not the worst yet; large colonies of nutria were springing up through the eastern part of the Louisiana Coast, both from transplants and gradual natural migrations. The eastern type habitat produces a much thinner pelted animal without the color, quality and density of undercoat indicative of the western animal. The comparison of the eastern and western nutria pelt is much the same as that of the eastern and western muskrat.

A study of the nutritional value of various food plants of the muskrat and nutria was initiated by the Wild Life and Fisheries Commission and the L.S.U. Agricultural Extension Service. It was determined that the same species of vegetation collected from the floaty peat marsh of eastern Louisiana is weaker in nutritional value than that collected on the mineral soils of the prairie type marsh of western Louisiana and eastern Texas. Certain types of woody stemmed vegetation that dominates great expanses of floaty, fresh eatern Louisiana marshes rubs the underfur of the nutria, making the pelt worthless.

Many of the eastern Louisiana trappers were expert fur handlers, and they put up some of the most perfectly handled pelts in an effort to get a suitable price, but to no avail. The eastern dealers, operators, trappers and buyers were at their rope's end. They could do nothing with the nutria, and by this time there were very few other furbearers to work with. The nutria population continued to increase, denuding thousands of acres of marshland throughout eastern Louisiana. As a last resort, a tremendous pressure was put on the Legislature and the Wild Life and Fisheries Commission to declare the nutria an outlaw, remove it from the non-game quadruped list, and initiate a bounty of 25 cents per tail. From a biological standpoint, the Commission could not recommend such action. From past experience, it was a known fact that this would not solve the problem.

It was found that one of the most potent influences in the control of nutria populations was hard freezes. In areas where the animals had denuded the cover vegetation and were forced to build platform-type nests near the water level, freezing sprays across such open, bleak areas wiped out practically the entire population. Freezes on over-populated areas have most likely destroyed more nutria than all the storms combined. In areas where suitable cover is found, the tails and feet will often freeze and fall off, ac-

A sugar cane field "harvested" by nutria following Hurricane Audrey in 1957.

counting for the many bob-tail animals. This indicates that the nutria are at the northern extremity of its range, which seems to follow closely to the Cypress tree and also that of the American alligator.

In June, 1957, Hurricane Audrey created a 12 foot tidal wave in western Louisiana, and 6 to 8 feet in the eastern Louisiana marshes, shoving what was probably the greatest population of nutria ever to be produced right in the middle of the lower reaches of the Louisiana sugar cane and rice belt.

That was the last straw. Those animals had been jostled around for several days in the storm tides and were lean and hungry. Instead of just eating normally, which is bad enough, they seemed to take on beaver-like tendencies, starting at the end of a row and just clipping the cane clear to the other end. This was really it! The Sugar Cane League, the Agriculture Commission, the Governor, and especially the Lt. Governor (who was from the heart of the cane belt) joined by the eastern fur operators, had the nutria outlawed in the 1958 Legislature, imposing a 25 cent bounty; however, no money was appropriated for the bounty payment. The agricultural organizations also prevailed upon Washington to set up a nutria control station in Houma for experimental methods and studies. The Wild Life and Fisheries Commission continued their work on the assumption that here at hand was a tremendous renewable resource, a complicated animal system converting all types of vegetation into fur and red muscle tissue of the highest quality. Some of the best fur experts of the country were called in to show us a way out. Plans for marketing, promotion and local dressing and manufacturing were offered, but no one was able to put the plan into reality under such fluctuating conditions.

Experimental use of nutria meat was introduced and a growing market found as feed for ranch mink, where 10,000,000 lbs. annually has been used since the 1962-63 season. A production of two million nutria and four million muskrats is not just wishful thinking. It could happen within a couple of seasons. These animal carcasses would provide a total of twenty-two million pounds of good red muscle tissue annually, which would be of great economic value to many people.

There are appeals by radio and television daily for just this type of undertaking. This meat can be collected and handled properly. It is amazing what the wives and children can do around a trapping camp for extra cash for themselves. During 1946, they collected 2,000 gallons of small muskrat glands for use in the perfume industry, when it took 1,000 glands to fill a one-half gallon bottle, which was worth only $3.00. There was great disappointment when the glands were replaced by ambergris derived from the sperm whale and musk from the musk ox that flooded the market after being held back during the World War II years.

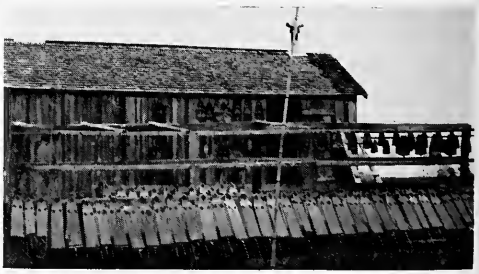
We cannot lose sight that our fur industry has been affected tremendously by the influence of storms, temperature and rainfall on furbearer population. Louisiana furs have experienced many other setbacks, due to methods of marketing and labeling and, needless to say, the 20 percent luxury tax imposed over the past 20 years.

STORMS

During the normal fur producing years, leading up to 1947, a hurricane with 80 to 85 mph winds and tides of 4 to 5 ft. were considered normal, and such disturbances seemed to act as a catalyst, stimulating production, moving furbearers about, washing out old nests and destroying the diseased and weak animals. The new silts brought in by storm tides tended to cultivate the marsh and improve the vegetation growth. However, from September, 1956 through September, 1965, four of the severest storms ever recorded struck the Louisiana Coast during this short period, overacting the "catalyst bit", especially Hurricane Carla.

Tropical storm Flossy occurred September 21-30, 1956, with peak winds of 110 mph and tides ranging from 10 to 11 ft. above normal, inundating the marshes of Southeast Louisiana. In 1957, June 25-28, Hurricane Audrey hit Southwest Louisiana, with winds up to 100 mph and tides reaching more than 12 ft. The muskrats seemed to ride the tidal wave in and when the wind shifted, many of the marsh dwellers came right back and settled along the coastal edge of the marsh.

In 1961, Hurricane Carla spun off the coast of Southwest Louisiana for 8 to 10 days, piling up a tremendous amount of water, and finally went ashore in the middle and upper Texas Coast with winds up to 175 mph with peak tides of 20 to 22 ft. Southwest Louisiana and East Texas marshes were inundated with salt water for a period of 25 to 30 days. During this prolonged period of flooding, the entire marsh rotted and poisoned out, destroying all the marsh furbearers, except bar seed stock. There has probably never been a period that any of our marshes were so sterile of mammals. Following storms there is usually a prolonged period of clear, hot weather and the combination of sun, salt water and decaying vegetation over a long period are just too much for any of the nocturnal animals. Even cattle and horses are unable to withstand such harsh conditions.



By 1960 trapping meant nutria, with a few muskrats.

From September 28 to October 5, 1964, Hurricane Hilda swept over the central Louisiana Coast with winds up to 135 mph and tides 6 to 10 ft. The following year, September 8-11, 1965, Hurricane Betsy, with winds up to 160 mph and tides of 12 to 17 ft. swept the marshes of Southeast Louisiana. The severity of Betsy's wave action drowned a high percentage of the marsh animals and birds, but on the other hand the flooding and silting cultivated vegetation, particularly three-cornered grass, greatly improving the marshes.

TEMPERATURE AND RAINFALL

In checking weather records, it appears obvious that prolonged wet cycles with mild winters are the types of weather conditions conducive to Louisiana furbearers. The average rainfall per month in the year 1940 through 1948, leading up to and through one of the State's greatest muskrat peaks, was 6.25 inches with normally mild winters.

The following years, 1949 through 1963, when muskrat population remained unusually low, the average monthly rainfall was only 4.89 inches, and winter temperatures were unusually low, destroying the State's entire citrus industry.

During the past few years, 1964 through 1967, the average rainfall per month was 5.08 inches with mild winters. Under these more temperate conditions, there has been a great improvement in marsh conditions and a steady increase in muskrat production. From the trapping season of 1964-65, when only 201,519 muskrats were marketed, there has been a steady increase up to 529,438 in 1966-67 and an estimated 1,000,000 take for the 1967-68 season.

MARKETING, LABELING AND LUXURY TAX

All wealth originates from natural resources that have been accumulated by nature, and here in Louisiana the surface geology of the Mississippi River and the gradually receding Gulf levels in the prairie type marshes of Southwest Louisiana have prepared a unique habitat where plants and animals accumulate in abundance. A great many of our marketing problems have resulted from the transition of muskrats to nutria. There were not enough muskrats to keep the trade alive, and the technicians, with secret dressing formulas handed down from generation to generation, were unable to change over to nutria rapidly enough.

While the handlers and technicians were trying to hang on to a dying muskrat operation, the nutria populations were literally exploding. Those that did try to make the conversion found failure too expensive. Proper dressing of nutria has never been accomplished in America. If muskrat technicians would have converted fast enough, the harvest of the 1956-57 season would have been a fairly good test of our potential. However, there were only 543,169 pelts marketed that season, 90 percent of which were western. A suitable process of making the easterns usable had not yet been explored.

In the 1960-61 season, an accumulation of undersized nutria pelts was donated to a New York fur dresser and dyer for experimental purposes. Out of this research came the long-hair unplucked nutria. Up to this point fine European plucked and sheared process of American nutria was so expensive that only the larger skins could absorb the cost. Samples of the unplucked smaller pelts were quietly passed around the manufacturing trade. The following 1961-62 season there were takers for the smaller sizes and thus began an outlet for the thin pelted eastern nutria. Longhairs were being used in the cloak trade for trimming and lining and in the hatter trade. This was a real break for the eastern trapper, as it was found that the western type was entirely too bulky for lining use. The State's production immediately jumped to the 1¼ to 1½ million mark as a result of finding a use for the eastern pelt. Practically all of our furs today, including muskrats, are dependent upon the European market.

The mutation mink ranchers have carried the entire American fur industry for the past fifteen years. From the figures below, secured from Fur Age Weekly, one can readily see the comparison in the decline of the number of fur manufacturers using the Louisiana produced wild animals, with dominance of the ranch mink manufacturers.

Animal	1960	1967	Animal	1960	1967
Muskrat*	95	30	Mink	978	903
Raccoon	70	32			
Nutria**	16	14			

*Muskrat, mostly northern species
**Nutria, mostly trimmings and linings, with only 2 or 3 coat manufacturers.

The fur labeling laws that went into effect in 1951 proved unfavorable to Louisiana. Such romantic names as Hudson Seal, River Sable, Water Mink and Loutrine, formerly attached to fur garments, had to go—in favor of the label muskrat. Raccoon in the dyed stage lost its luxurious name Laskin Sablein, and the Black Marten had to return to its common name oppossum. On the other hand, the mink ranchers with their mutations were free to come up with such names as Autumn Haze, Black Diamond, Lutetia, Breath of Spring, Tourmaline, and Azurene, describing their color phases, which add greatly to their promotion and salability.

Our fur industry suffered an additional deterent in that a 20 percent luxury tax was imposed on finished fur garments during the war years, which was reduced to 10 percent later, and stayed in effect until 1965, at which time it was completely removed. The furs that Louisiana produces are not necessarily a luxury item, but instead are more in the classification of a useful commodity.

CONCLUSION

During the prolonged period of great storms, unusual freezes, overpopulation of muskrats and nutria, plus the multibillion dollar oil industry

It is not the intention of the Commission to make a "Songbird" out of the alligator, but instead, through research to show the way that the alligator industry may be upgraded to a much greater sustained yield basis, allowing all participants to reap the harvest. The accumulative knowledge derived from having many people in the business of raising alligators will add to management techniques.

established in our marshes, we have, since 1964, begun to emerge with another normal muskrat crop, coupled with 1½ to 2 million nutria, plus the normal catch of other furbearers.

It appears that the other furbearers have learned to accept the nutria's presence. Strife between the species is no longer noticeable. It may be that the vicious individuals have been destroyed, and the strain on both sides has become more evenly tempered. This was indicated in the case of muskrats during the past few years of livetrapping and transplanting work. One cage could be used to transport 30 to 40 live muskrats, with almost no fighting. Ten to fifteen years ago it was necessary to use cages with separate compartments for holding and transporting purposes.

The main problem now is to properly harvest the fur crop. Our four to five thousand trappers will not provide the man-hours needed to do everything necessary to trap and handle 4 to 5 million muskrats in the future, 1½ to 2 million nutria, plus the other furbearers. This tremendous population cannot be handled with the personnel now available. The entire Louisiana trapping operation will have to be reconstructed. Since prolonged periods of low production, the entire American fur economy has been built around ranch mink. The technicians that manufacture and handle southern muskrats have all passed out of the picture. The handling of nutria was never too successful in America, all of this operation having been done in Europe. One of the peculiarities of the fur business is that in every branch of it, the supply creates the demand.

The problem is "can the supply and demand be maneuvered along together and fast enough to prevent the animals from again destroying their food supply?" If so, there may be 10 to 15 good years ahead. If not, there may be less than five years.

HUNTING HIGHLIGHTS

(Continued from Page 8)

"good" quail crop in one state might be "poor" by another state's standards.

Hunting seasons for each species in these tables will be within the dates indicated. In many cases, the hunting dates shown here are the *earliest* and *latest* dates when gun hunting is allowed. Many states manage game on a regional or area basis, and several shorter seasons for specific zones may be included within the brackets of the general season. *Anyone planning to hunt in another state should contact the game department of that state for specific information about seasons, permits, limits, and whether both sexes of the particular game may be hunted.*

The 1968 regulations for hunting in Louisiana follows:

Quail: Nov. 28 - Feb. 28; Daily Bag 10, Possession 20.
Rabbit: Oct. 5 - Feb. 16; Daily Bag 8; Possession 16.
Squirrel: Oct. 5 - Jan. 10; Daily Bag 8; Possession 16
Bear: Closed
Deer: One per day, 5 per season; Nov. 23 - Dec. 15; Dec. 26 - Jan. 12
Turkey: March 29 - April 20, 1969; Daily Bag 1, Gobblers only; Season Limit 2
Archery Season: Oct. 5 - Jan. 12, 1969, inclusive
Commercial Hunting Preserves: Oct. 1 - March 31, Pen-reared birds only.

1968-69 MIGRATORY REGULATIONS

Doves: 3 way split: Sept. 1 - Sept. 15; Oct. 19 - Nov. 24; Dec. 19 - Jan. 5.
Rails: Nov. 2 - Jan. 10
Gallinules: Sept. 1 - Oct. 20
Snipe (Wilson's): Dec. 13 - Jan. 31
Woodcock: Nov. 28 - Jan. 31
Coot: Dec. 14-Jan. 12
Duck: Dec. 14 - Jan. 12
Goose: Nov. 4 - Jan. 12

(EDITOR'S NOTE.—The new "1968-69 Winchester Hunting Compendium," a 50-state, 62-page annual survey compiled by Olin's Conservation Department, with the cooperation of state fish and game agencies are available for 25 cents. Write to: Conservation Department, Winchester-Western Division, East Alton, Illinois.)

Wildlife Shorts

Louisiana red-ear mobilian turtles show great variations in the markings of their undersides. These baby turtles are very popular in the pet shop trade.

Throughout the United States, exclusive of Alaska and Hawaii, there exists about 32 species of turtles. Louisiana can boast of 21 different kinds, over two-thirds of the total. This large variety of turtle species scores another first for our wetlands.

Twenty years ago this was typical of gulf coastal fishing. Anglers in skiffs, powered by small horse-power motors, fished the bays and passes into the gulf. Major excursions were only made aboard rented shrimp luggers when the shrimping season was over. Lake, bay, bayou and brackish lagoon fashion was characteristic of those early days.

Twenty Years of

SPORTFISHING ALONG THE GULF COAST

McFadden Duffy

TWENTY YEARS AGO, sportfishing along the coast of Louisiana as we know it today simply did not exist. True, there was plenty of fishing and many fishermen; but not anything like it is today.

Gulf fishing was limited to private yachts, fishing boats that could be hired when they were not engaged in shrimping activities, boat and bait livery camps where skiffs could be rented, and private boats that were kept near favorite fishing spots along the coast.

Fishing in the inland coastal bays, lakes, bayous and passes has not changed a great deal during the years; although the overall pattern of fishing along the gulf coast has changed greatly during the past two decades. About a dozen species of fish which were only read about in sporting magazines 20 years ago by Louisiana fishermen are commonplace at the docks and marinas all along our coastline from the Texas state line to the Mississippi state line.

Twenty years ago, no one dreamed that there would be three big game fishing clubs in the state and that anglers would be catching blue marlin, white marlin, sailfish, bull dolphin, hefty tuna and speedy wahoo with more than consistent regularity.

Bay fishing consists mostly of speckled trout, redfish, white trout, croakers, flounders, jackfish, drum, sheepshead and tarpon during certain months of the year.

Offshore anglers take amberjack, barracuda, bonito, cobia, dolphin, jackfish, jewfish, king mackerel, Spanish mackerel, red snapper, sailfish, wahoo, tuna, tripletail, spadefish, speckled trout, sheepshead, blue marlin, white marlin, bull redfish and pompano in season.

It was just about twenty years ago that a major oil company erected a test platform near the present sulphur mine seven miles south of Grand Isle. It was dubbed the "umbrella" because it was a small square platform on a single piling.

Fish began to congregate around the structure, and it soon became a favorite fishing spot with gulf anglers because it was only seven miles from shore and the island was visible.

This marked the start of a twenty-year period of transition that enhanced Louisiana's appeal to fishermen-tourists, and greatly broadened the scope of salt water fishing for Louisianians. One after another oil drilling platforms sprung up. Like an army of towering steel spiders, they spread down the Louisiana coast and began marching ever farther into the gulf, growing bigger and bigger—attracting more fish.

And, with this gulfward march of the petroleum industry's drilling platforms went Louisiana's fishermen.

The only single true charter boat of twenty years ago was soon augmented by the conversion of fishing boats to accommodate the growing number of anglers who wanted to try Louisiana's expanding gulf fishing. Private yachts that for-

It was just about 20 years ago that the first offshore petroleum structure was built. Located about seven miles south of Grand Isle, it was the forerunner of over 2,000 structures such as this which offered a new and diversified form of fishing. Serving as man-made reefs, they attracted new species of fish and enhanced Louisiana's angling opportunity.

merly had fished only inland coastal bays and lakes soon followed and a new breed of anglers was born—gulf fishermen.

Marinas, coastal launching hoists and boat sheds were built closer and closer to the gulf, and the outlets to the Gulf. Bay fishing and coastal lake fishing still attracted a large percentage of angling activity, but gulf waters became increasingly popular.

It was not an overnight transition, but the trend was set. Throughout the 1940's gulf anglers began to push farther offshore. They were exploring and the hopes and dreams of those early explorers began paying off.

In 1953, a well-known fisherman from Metairie, Louisiana, claimed to have seen what he believed were sailfish off Grand Isle. Folks scoffed at him, but he was convinced that what he had seen on several occasions were sailfish. He boned up on sailfish and how to rig for them. Then he went after them.

People secretly laughed each time he ventured out and came in empty handed, but he was determined. In October, 1953, he scored in waters off Grand Isle. It was a top score because his 96 pound sailfish still remains at the top of the Louisiana Outdoor Writer's Association list of the "Top Ten" in each species.

Since then, hundreds and hundreds of sailfish have been caught in Louisiana waters. Highly respected, they are considered commonplace; and one finds them listed on all of the major fishing rodeo "eligible fish" categories.

Other things were happening in the gulf. Underwater spearfishing, a sport that blossomed after World War II, found the divers bringing in huge jewfish that ranged in the hundreds of pounds. Barracuda, a species that had never before been taken by hook and line began congregating around the mushrooming offshore petroleum drilling platforms. The spearfishermen were the first to catch them. With the jewfish and the barracudas came the groupers.

As the number of offshore platforms increased, another new species began showing up. There is still much to be learned about where the pompano come from and where they go in the spring; but in the fall and winter months, rig fishermen began catching the highly-prized food and game fish. At first, pompano catches at best numbered a dozen fish. The falls and the winters rolled by and catches mounted. The hundred-per-trip-mark was first reached in 1960; and since that time, catches of pompano by numerous fishing parties of six persons, or less, frequently number in the hundreds today.

Pompano, considered a mild water fish in Florida, along the coast and at the mouths of the rivers entering the gulf and the Atlantic, developed a fondness for the offshore platforms. Prior to erection of the offshore platforms, a few were taken along Louisiana's shoreline; but with construction of the rigs, the annual migration began to build up to where today the princely pompano is one of Louisiana's leading "winter" fish in popularity with fishermen.

While moody at times and inclined to move from one rig to another during the fall and winter months, they can be sought out. Once a school is located there is plenty of action.

There are two other changes that have occurred during the past decade for the average gulf fisherman. One is blue fish. While always present in considerable numbers; as the years rolled

After the offshore rigs were increased in number, underwater spear-fishermen were the first to find that the spider-like steel structures became the haunt of giant jewfish, barracuda, grouper and several other new species of gulf fish—new to anglers as well as underwater divers.

by, they increased in size. Instead of two-pounders or three-pounders; blue fish ranging five pounds and upwards began showing up. They have increased steadily in size and the present state record is a 10-pound, 6-ounce fish caught in July of 1968. Six and seven-pounders are pretty common.

Possibly due to the more than two thousand rigs and platforms a new species of "white trout" also began showing up in gulf waters. Some fishermen call them silver trout; but they are a member of the weakfish family, and far greater in size than the common "white trout" found in the inland coastal lakes, bays, bayous and brackish canals.

And at the same time that massive pompano schools began to arrive in season, it was noted that Spanish Mackerel began to become more numerous and much larger in size. These changes which greatly enhanced gulf fishing to charter boat parties marked only the start of the big changes in sportfishing in the gulf that were to follow.

In 1950, the U. S. Fish and Wildlife Service began operating an exploratory research vessel, the Oregon, in the gulf. Berthed at Pascagoula, Mississippi, most of the four years it operated in the Gulf of Mexico were spent in shrimp investigations, but attempts were made to catch the tuna that were occasionally sighted. Blackfin tuna were seen in 1950. In 1951 large yellowfin tuna, the species commonly canned, were sighted. Efforts were made to take them in purse seines, but they failed.

The following year, efforts were made to take them by traditional West Coast methods. That called for chumming with live bait and "slaughter" poles. In 180 days at sea, only one yellowfin tuna was taken.

In June of 1954, the Oregon employed the Japanese long line method and reported taking large yellowfin tuna, swordfish, marlin and sailfish. The Japanese long line is actually a long trot line. The main line was fished at a depth of 120 feet and was about eight miles long. From it were drop lines about 25 feet long and connected to two-foot-long cables, to which baited hooks are fastened. In short, the Japanese long-line resembles a trot line eight miles long and strong enough to hold tons of fish if they take the bait.

One particular "set" was made by the Oregon about 40 miles from the mouth of South Pass. When the mechanical puller had been stopped and the end of that set made there were 15 yellowfin tuna, two blue marlin, one white marlin, three Mako sharks, eight silk sharks and three white-tipped sharks. The fish were weighed and measured—all but the blue marlin. It was more than 12 feet long and too heavy to weigh.

The second set on that particular trip was made closer to South Pass, about 30 miles south and east. Only 300 hooks were put out on the long line. That set brought in 15 yellowfin tuna, seven white marlin, one sailfish and a yellowfin tuna.

This triggered the imagination of a number of Louisiana fishermen. There were big game fish here and in 1956, three relatively small sportfishing boats ventured out of South Pass seeking big game fish. They stayed fairly close together because sport fishermen had never gone that far offshore. It was pay dirt. The first two white marlin, and one yellowfin tuna, were taken.

Word of big game fishing so close to South Pass spread like wildfire throughout Louisiana. Other anglers made trips and additional big game fish were hooked and lost. Some were taken; but none added up in size to the catches made by the Oregon. The fish were there and could be taken by rod and reel, yet there was much to be learned.

In 1958, Louisiana's angling fraternity was startled when a Shreveport angler brought in a 463½ pound blue marlin, taken on rod and reel. This was the start of intensified big game fishing that led to formation in 1961 of the first big game fishing club in the state. Today there are three such clubs.

The Mississippi River-Gulf Outlet, dredged by the U. S. Corps of Engineers as a second outlet to the Port of New Orleans and best described as a tidewater link with the gulf proved to be a new source of fishing. This photograph shows a fisherman angling in gulf water as an ocean-going ship passes by en route to port. Speckled trout, croakers, redfish and many other species enter the seaway and fan out into southeast Louisiana waters through the cuts in the east side of the channel.

In 1958, following discoveries of the U. S. Fish and Wildlife Service exploratory vessel Oregon within 30 miles of South Pass, anglers began to try for big game fish on rod and reel. This is a picture of the first blue marlin ever taken in Louisiana waters. It tipped the scales at 463½ pounds. Caught in South Pass waters, it opened an entirely new fishing frontier.

Louisiana's big game fishing did not stop at South Pass. It spread westward virtually to Texas. Finding new haunts of big game fish wasn't easy. There were countless thousands of man hours spent in the fighting chairs; and boats ventured farther out into deeper water. They found what they sought—the big ones.

But this is not the full story of two decades of gulf fishing. During the twenty years that have passed, addition of barracuda, pompano, huge blue fish, big "winter" white trout, larger Spanish mackerel, jewfish and larger schools of red snappers; mark only progressive steps in more fishing opportunity in gulf waters for sport fishermen.

There was another development that greatly enhanced the coastal lake, bay and bayou fishing in the southeastern half of Louisiana. We're referring to the Mississippi River-Gulf Outlet, a 70-odd mile long ship channel that was dredged by the U. S. Corps of Engineers as a straight, shorter outlet to the Gulf of Mexico from the Port of New Orleans, linked to the port by the Intracoastal Canal.

From the outset, it was also dubbed the "tide-water channel". That means that it was an infusion cut that remained at gulf level and introduced gulf water and more salt water fish into the lakes, bays, bayous and canals of southeast Louisiana. This greatly improved fishing by increasing water salinities and bringing salt water fish close to the "average fisherman's" reach.

How much has this twenty year change in the pattern of gulf fishing meant to the people of Louisiana in the form of outdoor recreation? That would be difficult to answer, but there are signs everywhere that serve as symbols of what all of this has meant. About twenty years ago, there was only one full time fishing boat available for charter. Today, from Cameron to Mississippi, it is estimated that there are at least 75 charter boats at principal marinas or fishing ports, along the coast.

Perhaps another symbol of what two decades of gulf fishing has meant to Louisiana fishermen is the trailer hitch. Twenty years ago, the sight of a trailer hitch on an automobile was a rarity. Today, it is commonplace. Boat sales have increased at a staggering rate during the past twenty years and sales have not ceased to climb. The same is true of larger and more powerful outboard motors.

About the only thing that has not changed as far as the gulf sportfishing picture is concerned is the deep-rooted interest in fishing. The days of the sputtering motor and skiff and the slaughter pole are gone—just as the horse and buggy days are gone. The rods and reels of twenty years ago appear like broom sticks with winch-like reels compared to today's fast-tapered rods and silk-smooth reels. Fast fishing cruisers, with outriggers have replaced the hired luggers and modern standards of living have placed a boat within the reach of the middle-class families.

There have been many changes in gulf sportfishing but the best is yet to come.

Wildlife Shorts

The black vulture is known by some in Louisiana as the "buzzard" and by the French speaking people as "carencrow." It is completely black with a little white under the wing. Its black head lacks feathers. The wingspread is a little under five feet, and the flight is very graceful and majestic.

The turkey vulture, which is very common in all Louisiana, differs from the black vulture by its larger size and red head. In flight the greater amount of white on its wings and its longer tail will separate it from the black vulture.

The sparrow hawk is the most friendly of our hawks. It can be distinguished from all others by its small size, rufous tail, and spots on the breast. A few of these birds nest in Louisiana but they are more numerous in the winter when those nesting in the north come south again.

Probably more books have been written about birds than any other member of the animal kingdom. One book about birds is published every week.

LAW ENFORCEMENT

This group of wildlife agents made up the first organized law enforcement training class in the history of the Louisiana Wild Life and Fisheries Commission. It was held more than 20 years ago and marked a new era in wildlife enforcement work.

DURING THE PAST two decades the Louisiana Conservationist has recorded great strides in fish and game law enforcement and has been a guiding factor in informing the people as to the activities of the enforcement division. The division has developed into a streamlined operation that is comparable to any of its kind in the nation.

The fastest boats, automobiles, planes and also statewide radio communications are being used to "shrink" the state with excellent results.

However, when you hear people tell of the "good old times" and compare them with the advances recorded in the pages of past Louisiana Conservationists it appears that the "good old times" weren't what they seemed to be.

Two veteran agents who have a combined record of 69 years, remembered that sometimes the making of an arrest meant an all day and night vigil in an open boat, and at that time the records show there were no radios for communications. So it appears that the agents had to sit and wait for developments amid the mosquitoes, gnats, and other flying insects.

At that time, game agents had small expense allowances. The records show an agent I, in 1948, when this issue of the Louisiana Conservationist was published, got, in their lowest bracket, pay of $120, per month. Today the same agent gets $380 to $580 per month with expenses and is equipped with an automobile when necessary; a boat, trailer and a radio inter-com set for communications with the main office.

In the old days, say the veterans, the agent had to pay for his own food and lodging. He had to own an automobile and keep it up and all he was allowed was expenses for gasoline and oil.

According to the Louisiana Conservationist of October, 1951, we learn that a new type of violator came upon the scene. He was the fish shocker. From its pages of that same date, we see that "This unsportsmanlike practice is frowned upon both by legal commercial fishermen and by sportsmen alike." The practice of fish shocking, if we follow the pages of the Louisiana Conservationist, has plagued the industry and the enforcement division ever since.

The Louisiana Conservationist of following years points out that "the fish electrocutors are equipped with motors, boats, magnetos, old style telephone equipment and other sundries." Today, according to latest reports of arrests, the practice of fish shocking still continues to break out in scattered parts of the state.

The enforcement division is charged with the enforcement of the shrimp season regulations which are imposed each year. These regulations are imposed solely for the protection of the larval and young shrimp during the spawning time. The shrimp are spawned in the open sea and migrate to the estuarine waters of the coast and there live and grow on these nursery grounds in inside waters.

The recommendations for the protection of the baby shrimp on our nursery grounds may be

Wildlife Agents shown above are pictured with illegal hoop nets that were confiscated during the early 1950's.

traced in the Louisiana Conservationist to this day.

This protection affords an equal guarantee to those who get their livelihood from the shrimp industry that they will have a profitable lifetime avocation. The Conservationist of 20 years ago pointed out that it was sad to realize that some shrimpers cared less for regulations that protect their industry than they did for the marketable production they were seeking and who by their law violations destroyed ten times or a hundred times the number of shrimp they took.

In 1960 the "Boating Law" was passed and the enforcement division was charged with its implementation. This meant the addition of more boats. The division's motor patrol boats were already doing a fine job of rescue work while on their patrols. The new law brought the agents in closer contact with boaters, water skiers, speedboat operators, fishermen and others, since part of the agent's work was checking not only for boat numbers, but also for equipment required on board.

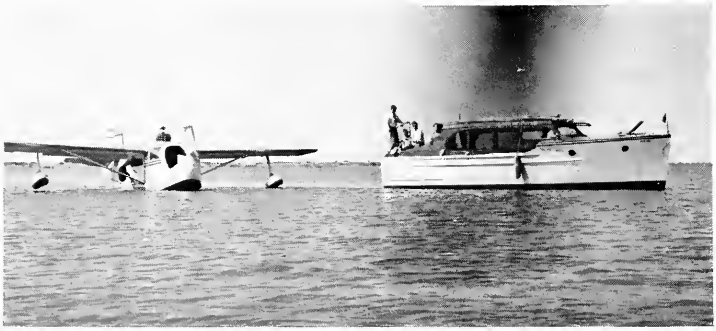
With the enactment of the "National Small Boat Law" which, among other things, was passed for the safety of boaters; the enforcement of the law was delegated to the wildlife organizations of the various states and gave the states the option of implementing the laws themselves or declining. If the latter was the case the U. S. Coast Guard was ordered to assume these duties. The Louisiana Wild Life and Fisheries accepted the challenge and the implementing of the laws went to the enforcement division.

This expansion has cost the state money. Additional patrol boats were acquired and powerful outboard motors were purchased and upkeep of the craft and engines became the duty of the Wharf.

At present the Wharf is charged with, not only the upkeep of approximately 250 outboard motors, but also with the upkeep of the 13 radio communication towers, located at strategic parts of the state, and also the upkeep of individual automobile ship-to-shore, walkie-talkie and other radio equipment for the enforcement division.

While the Boating Law has cost money to implement, it has also broadened the scope of the enforcement division and made every law

It was during the past two decades that fish shocking devices were first used in the illegal taking of fish. Devices were invented by violators that would momentarily stun fish by sending a positive voltage charge into the water. This brought fish to the surface and they were scooped up with nets. Shown examining an illegal fish catch, from left, are the late wildlife agent Cecile Gilmore, wildlife agent Cullen Landry and District VIII Supervisor Lesma Hebert.



Use of amphibious planes in wildlife law enforcement work began as early as 1948 when the Louisiana Wild Life and Fisheries Commission secured two Widgeons. Two-way radio communication between planes and boats beefed up enforcement activities and made apprehension of game and fish violators much easier to accomplish.

enforcement agent, whether on shore or at sea, an instrument of the boating safety laws.

The years 1948 and 1949 were marked by a great reduction in violations of State and Federal Fish and Game laws. This was due to the improvement of the division's aviation section. The law violator was beginning to regard the drum of an approaching airplane motor as a forerunner of disaster.

In the days before the sea planes were put into use by the enforcement division, fish law violators enjoyed a merry game of tag in Louisiana bayous and marshes. Knowing the labyrinth of canals the violators had little difficulty in dodging enforcement agents. But they weren't able to dodge the radio equipped planes.

Ducking into shallow bayous where patrol boats couldn't go, didn't give them protection either. The Conservationist pointed out that a patrol pilot could spot the violator, radio his location and direct boat borne officers to him if necessary. If the water or terrain was suitable the flying game agent could make the arrest himself.

A fair percentage of the hours used by enforcement agents has been done directly for the public, in performing the various services for individuals, such as rescue work before and after storms, work done during various floods, numerous searches for lost and drowned persons, searches for lost boats, boats overdue, assistance given to Federal agencies and also work done for other state agencies.

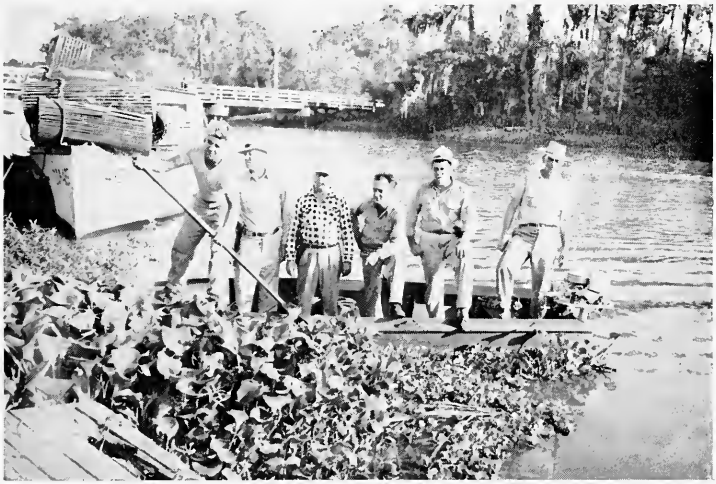
Since the passage of the boating law (Act 43 of 1960) arrests for boating violations are also reflected in these figures. With the enactment of the boating law the enforcement division has charged all agents with the responsibility of enforcing this act.

VIOLATION CASES

1948	1,076	1959	1,410
1949	1,278	1960	2,247
1950	1,196	1961	2,511
1951	961	1962	3,124
1952	1,433	1963	2,788
1953	3,755	1964	3,564
1954	3,468	1965	3,379
1955	3,515	1966	5,756
1956	1,921	1967	5,858
1957	1,902	1968*	3,000
1958	1,568		

*Approximately.

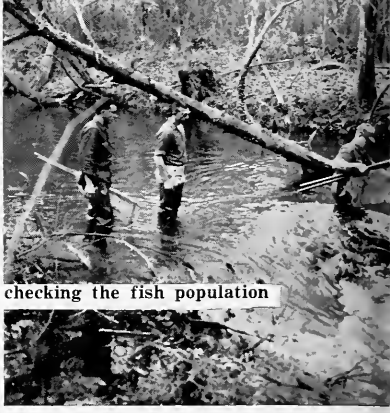
There were 95 agents of the enforcement division in 1948, compared to 204 agents presently assigned to the division. ✠



Early activities of the Enforcement Division of the Louisiana Wild Life and Fisheries Commission were directed toward confiscation of wooden slat traps for fish. In the late 1940's and early 1950's this illegal practice was completely eliminated.

Twenty Years of Fish Management

Harry Schafer


checking the fish population

IN THE PAST TWENTY years, fisheries science has made great strides in the management of lakes and streams.

Approximately twenty years ago, the Louisiana Wild Life and Fisheries Commission hired the first full time fisheries biologist. Trouble shooting fishing problems in various lakes, extension services and fish research occupied most of his time. Previously, the only fish management provided by the Commission was the stocking of fish from the three state hatcheries.

Although the first biologist was hired only twenty years ago, the people of Louisiana were historically conservation minded. As early as 1880, the first Louisiana law for the protection of fish was enacted. It prevented the destruction of fish by poisoning, dynamiting and netting. Then in 1904, the first closed season for fishing was established. By 1912, the Legislature had created the Department of Conservation.

In 1950, the Federal Government passed the Dingell-Johnson Act to provide federal money to the individual states for fisheries research. The money for this program is raised through excise taxes on fishing tackle; therefore, the program is supported by those who benefit from it.

In 1952, three fisheries biologists were hired as a result of this program. Now the fisheries section was really developing and research of fish management problems became a full-time objective.

Even with the additional biologists, it was difficult to keep up with the increasing population of fishermen. Twenty years ago 66,797 resident fishing licenses and 3,140 non-resident licenses were sold. Last year these figures had grown to 293,329 resident and 21,623 non-resident fishing licenses. There are now 15 fishermen for every one angler twenty years ago.

The large number of farm ponds constructed in the last twenty years has significantly increased the amount of fishing available. Intensive research in the proper development and sound management of farm ponds has been so successful in simplifying pond management that in most cases the owner can do it.


conducting bioassays

New farm ponds are stocked by the Commission in a definite sequence. Bluegill are stocked in the winter as fingerlings at the rate of 1000 per acre as bass fingerlings are stocked the following spring at 100 per acre. The bluegill fingerlings will have matured and spawned by late spring, thereby providing food for the bass. By fishing the pond heavily the population will remain in balance—that is approximately seven pounds of bluegill to one pound of bass—and fishing will remain good.

Research has determined the balances within the fish populations to insure good fishing. Population samples are taken in the fishing areas on a regular basis when poor fishing develops. In this manner the kind of fish present and in what number can be determined and suitable remedial action taken.

The usual method of taking a population sample is to encircle an acre of water with a small mesh net. A chemical which kills the fish is applied within the enclosed area. The dead fish surface and are counted, weighed, measured and examined. Other methods of checking the population include the use of nets and electric generators. The chemical method is the most reliable, and, therefore, the most widely used. When the fish population contains a large percentage of rough fish—mainly gizzard shade—the biologist uses a small dose of this chemical and selectively kills the shad. With the shad removed from the lake, the game fish have space to grow and fishing success improves.

Fisheries research has shown that each body of water has its own basic fertility and will support only a certain number of pounds of fish. No amount of stocking will permanently increase the total weight of fish which the body of water will produce. If brood stock is already present and if habitat conditions are suitable for these fish, it will not be necessary to stock.

Water level fluctuation in large lakes is an important fish management tool. It is basically

used for three reasons. First, to control aquatic weeds by removing the water from the plants and exposing them to the sun and the cold which kill them. When the lake is again filled, the plants must then grow from seeds which takes several weeks. This gives the fishermen about two months of fishing that would not have been available if the water level had not been lowered. Second, water level fluctuation increases the fertility of the lake. When the aquatic plants decompose, they are broken down into basic elements which return to the lake. These elements can then be utilized by the small microscopic plants and animals which is the beginning of the food chain for fish. Third, fluctuation produces a better balance in the fish population.

When the size of the lake is reduced by dewatering, the fish are contained in a smaller area. Under these conditions the predator fish have better access to the trash and rough fish. The bass, crappie and catfish get larger. When the lake is refilled, the panfish grow faster because the competition has lessened.

Another recent management tool is the introduction of a large predator species to control the shad and other rough fish in a large lake. Two such species, the walleye and the striped bass, have successfully been introduced in Louisiana waters. The walleye is a very good predator and an excellent sport fish. The striped bass is native to Louisiana occurring in the streams in the Florida parishes and in salt water. This fish is being stocked in both lakes and streams and will be a good addition to the creel, particularly when the fisherman hooks onto a twenty pound specimen. The fertilized eggs of these fish are placed in hatching jars and after several days the eggs hatch. The fry are then placed in rearing ponds for several months until they are approximately six inches long. They are then stocked in the lakes.

A Louisiana lake that has an aquatic weed problem. The best method of control is water level fluctuation.

It is only recently that the method for spawning channel catfish was developed. After this development, it was only natural that catfish farms followed. This meant that the catfish farmer could produce a crop of fish that was of equal or higher value than agricultural crops. This also meant that a steady supply of high quality catfish was available to the consumer. Fish farms using other species of fish are not too far off as experiments are being conducted using both salt water and freshwater fishes.

Fishery biology includes many other sciences. Fish can be infected with a virus; fish can have a disease caused by bacteria; fish have both internal and external parasites; fish can have dietary diseases, all of which the biologist must diagnose and treat. Fish are affected by various substances that enter into their environment so that the biologist must analyze the water chemically. Bio-assays are conducted by placing fish in known quantities of a chemical compound to determine the toxicity. Many of the herbicides, insecticides and agriculture chemicals are tested in this manner long before they are put on the market. The biologist injects the adult fish with a hormone to induce spawning. The biologist takes blood samples from fish and counts the blood cells and analyzes the sample for protein.

Computer technology is also a tool of the fishery biologist. There are so many variables that enter the picture that the biologist now places all his field data on punch cards. When all his data are on the cards, then in a matter of minutes he can have the computer give the answers, where twenty years ago it would have taken him six to twelve months to analyze his data.

Sonar is now used to locate schools of fish and even single fish. Fish migration can be ascertained this way. Sonar is also used to map the bottom of the lake. Another method that is used to study fish migration is to attach a small transmitter to the fish and then pick up the signals on a receiver.

Within the past twenty years, we have been able to eliminate the size limit of freshwater game fish and increase the daily limit of panfish from fifty to one hundred. However, the cost of the fishing license has remained $1.00 throughout the years.

Even by increasing the number of fish in a lake, even by having larger fish available for catching, even by having a fish population in balance, all will be to no avail, if the fishermen cannot get to the lake to fish. Because this was fast becoming the fact, public boat launching ramp construction was initiated five years ago. There are now over sixty ramps on most of the major lakes. It is our goal to have public access to all public waters. ✠

TWENTY YEARS OF GAME MANAGEMENT PROGRESS

Joe L. Herring

Campers on a Louisiana Wildlife Management Area.

WILDLIFE MANAGEMENT is a relatively new branch of professional science. It is a complex field involving many other phases of scientific activity such as biology, botany, forestry, entomology, agriculture, water conservation, law enforcement, veterinary medicine and range management to name a few. It also calls upon the skills of statisticians, engineers, chemists, physicists and business administrators.

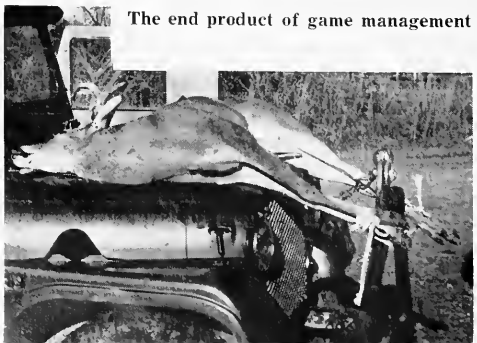
Looking back over the past twenty years we find that biologists of the Louisiana Wild Life and Fisheries Commission have combined all the fields involved to produce a very productive program. Basically, wildlife management attempts to control population of wild animals for the benefit of society. Wildlife management may be defined as the art of making land and water produce sustained annual crops of wild game and fish for recreational, economical and aesthetic values.

Over the past twenty years Louisiana has taken her place as one of the most progressive and aggressive wildlife management states in the nation. Programs being conducted on squirrels, deer, exotic birds, tranquilizers for wildlife use, statistical data for wildlife purposes, and many other phases of work have kept Louisiana as a leader.

Louisiana is fortunate in having some of the best and most recognized biologists in the Nation with our Commission. The scientific regulations of wildlife by trained biologists is a new and important part of wildlife management.

In looking back we see that Louisiana has had a nucleus of outstanding employees for the past two decades. The present wildlife management area program started as a chain of Refuges around the state. It was later found through a progressive research program that these refuge areas could be hunted and not seriously affect the wildlife populations. This would also provide additional areas for the hunting public to utilize. Thus the refuges were changed to wildlife management areas.

Progress was made in the stocking of pen raised animals and birds. This at one time was an accepted wildlife management practice. Practically every state in the nation was involved in this practice of wildlife management twenty years ago. Again through research it was found that habitat improvement was the key to wildlife populations rather than a continuous stocking. So another milestone was made in Louisiana's aggressive program.



The end product of game management

Such experiments as the refuge system assisted in opening the door for sound wildlife practices. Waterfowl refuges are still an important part of wildlife management.

One sportsman recently stated about hunting "we never had it so good". He referred to the 24 wildlife management areas over the state open to the public for hunting, fishing, camping, hiking, bird watching or what ever the outdoors enthusiast wished to do as long as he obeyed the laws. In the same statement he commented that Louisiana now has one of the largest—if not the largest archery season for deer in the nation—100 days, hard to beat. Another case of research paying off for the sportsmen.

Let's take a look at some of the progress made. Twenty years ago about 20% of the state had deer herds sufficiently large for hunting purposes. The areas with deer were mostly in the Mississippi River delta area. Realizing that deer could be established in other areas of the state personnel began trapping deer from delta areas with high populations and rearing them to areas void of deer.

Many outdoorsmen have in the past lived a normal life span, hunted the woods and fields but passed on without ever seeing a deer in the woods. This has now changed. With the trapping and transplanting of native wild deer we now have deer in every parish of the state. In some cases deer were purchased or traded from other states to speed up the transplanting programs.

The picture has now changed, we may say reversed, as only about 20% of the state is closed to deer hunting and with present management trends the season will eventually be open statewide. Thanks to research, cooperation from landowners, sportsmen, various type of law enforcement agencies.

Last year's deer kill of 35,830 is more deer than we had in the state twenty years ago. In fact the deer kill in 1960-61 was less than 7,000. So much progress has been made with the Commission deer program that the season bag limit for deer was raised this year from three to five.

Louisiana has another big game animal, the turkey, which can be managed as deer have been. In 1948 Louisiana had only three areas with turkey populations adequate to assure reproduction. These areas were: (1) Madison and Tensas parishes, (2) St. Helena, Livingston, and St. Tammany parishes and (3) Morehouse parish.

During the past five years the Commission has trapped for stocking purposes birds from some of these areas. Wild birds have also been received from Mississippi, Florida and Alabama. Presently all wild trapped birds are being stocked on the Commission Wildlife Management Areas. By building up good populations of turkey on the management areas biologists will then have a source of birds to stock over the forested habitat of the state.

Areas that were stocked three to five years ago are now producing "trap stock" for other areas. It won't be long before sportsmen over the state will have a chance to bag a wild turkey, thanks to research.

Progress is being made on the "Exotic Bird" program conducted by the Commission. This program consists of bringing birds to Louisiana, that are not native to this country. Several species being experimented with are the (1) Black Francolin, (2) Junglefowl, (3) Bamboo Partridge, (4) Japanese Green Pheasant, (5) Tinamous and (6) Waterfowl.

It is not the aim of the Commission for any of these bird species to replace what we have. We believe that the bob-white quail is the greatest small game bird in the world. On the other hand we believe that there is no large game bird better than the wild turkey.

The idea behind the exotic game bird program is to find species of birds that can utilize a different habitat than either of these birds. In other words the exotic species is to fill a gap and live on areas not ecologically suited to the other two existing game species. This will mean more game to the hunter. Louisiana now has the only established wild population of Black Francolin in the United States. These are in Cameron Parish where the birds are producing and gradually spreading.

The most important project being conducted at this time is the Commission "land acquisition" program. Since 1961 four areas have been purchased by the Commission for wildlife management purposes. These four areas include (1) Russell Sage, (2) Saline, (3) Spring Bayou, and (4) Red River Wildlife Management Areas consisting of some 100,000 acres of land. Presently, the Commission is in the process of purchasing another 55,000 acres in the marsh.

The Commission leases from U.S. Forest Service, U.S. Corps of Engineers, various timber companies, individuals and others some 659,912 acres for public hunting and wildlife management purposes. This is in addition to the land purchased for public use. Because many of the wildlife management areas were refuges thus we might say the refuge system was the forerunner of our present management system.

The wildlife management program has played an important and essential role in (1) restoration of wildlife populations, (2) preservation and development of habitat, (3) providing the public with a place to hunt, and (4) demonstrating sound wildlife management practices and serving as a proving ground for implementing wildlife research findings.

Emphasis will continue to be placed on land and water area purchases. Many of our sportsmen have not realized the seriousness of losing many of our outdoor recreation areas through drainage, land clearing, highways and urbanization. Louisiana sportsmen have been fortunate in having plenty of areas on which to hunt and fish; however, these areas are gradually decreasing. At many of our wildlife meetings sportsmen have expressed concern with present seasons and bag limits, however without a place to hunt or fish, seasons and bag limits are immaterial. If we have areas to hunt and fish on then our seasons and bag limits will take care of themselves. All sportsmen and outdoor recreation enthusiasts must write and get behind the present land acquisition program of the Louisiana Wild Life and Fisheries Commission and assist in making funds available for additional purchases.

Turning the years back we find that sportsmen were not permitted to take deer with a bow and arrow except during the regular gun season. When biologists made special archery season recommendations which would be held prior to the gun season, hunters complained stating that the "stick hunters could hunt with them, no special privileges". Information was gathered by the Commission biologist which indicated that special archery seasons prior to the gun hunts would have little effect on the deer population. Too, the archer was no one special, anyone desiring to hunt, could purchase a bow, arrows and practice. He too would become a "stick hunter" and enjoy this added outdoor recreation.

Finally approval was given in 1960-61 to special archery seasons on Union, Jackson-Bienville, Evangeline and West Bay Wildlife Management Areas. Season consisted of five week-ends to include Friday, Saturday and Sunday from October 21 through November 20, 1960. The same areas were open for the 1961-62 season from October 28 through November 12, 1961.

In 1962-63 the first pre-gun season was held October 1-15, 1962 in all areas declared open for deer hunting, including all game management areas except Lutcher-Moore, Zemurray, Thistlethwaite and Soda Lake. The 1963-64 pre-gun season was held October 26-November 24, 1963. The 1964-65 pre-gun season saw no change except for dates which were October 17-November 22, 1964.

The 1965-66 season saw the first change in

favor of the archer which gave a season from October 9-November 21, 1965. Season for 1966-67 was October 8-November 20, 1966.

Then in 1967 on recommendation of the biologist the Louisiana Wild Life and Fisheries Commission set its longest archery season in modern history. The season for 1967-68 began October 7, 1967 and continued through January 10, 1968 a great milestone for hunting and outdoor recreation. The season for 1968-69 will be for 100 days beginning October 5, 1968 and continuing through January 12, 1969 in all areas of the state declared open for deer hunting including wildlife management areas.

During the past 20 years quail and quail hunters have become noticeably scarce. The outlook is not especially bright for the future either.

We cannot go all the way back to 1948 for a measure of hunters and hunter success but a small game kill survey conducted following the 1954-55 season and a very similar survey conducted following the 1967-68 season revealed several interesting trends. During the 1954-55 season responses indicated that 49,497 of the 239,695 licensed hunters hunted quail one or more times. The most recent survey indicated that during the 1967-68 season only 35,674 licensed hunters hunted quail.

One item from each survey that is of interest is that the season's average kill in 1954-55 was computed at 18.3 birds, while last season it was practically the same at 17.8 birds per hunter per season. This probably serves to indicate that as hunting opportunity diminishes quail hunters just cease to be quail hunters. This could be interpreted to mean that while hunter numbers have decreased, hunter success has been about the same.

It is felt that the avid hunter owning quail dogs kills more than 18 birds each season, but the average is diluted by the results of hunters who are guests of those who possess quail dogs. It is possible that the same factor was true in the 1954-55 survey.

It would be misleading to indicate to quail hunters that the prospects of improving quail populations are bright at a state level. The available hunting areas are mostly private and permanent land use practices have reduced the possibility of restoring habitat. Few changes have been for the better; most have been for the worse. In passing, mention can be made of clean farms without brushy fence rows, improved pastures, pine plantations; but the real picture is unveiled over a period of years.

During the past two decades, the Fish and Game Division has employed a number of quail management practices. Early management attempts consisted of hatchery-raised birds. This was continued until it was determined that no number of released birds could halt what was considered the basic evil—habitat destruction due to new land use practices. Consequently planting materials were distributed along with directions for using them. They consisted generally of bicolor lespedeza seedlings, serecia lespedeza seed and occasionally multiflora rose plants.

A few people who owned land and had a genuine interest in quail development helped their areas a great deal. A few who owned land and were just as interested failed miserably because of deep, sandy soil, summer drought, pocket gophers, deer damage, cattle damage and a host of other reasons. Those who improved their quail populations were understandably reluctant to welcome all of the non-landowning hunters to shoot in their fields.

The Commission put in some demonstration areas to show what could be done for quail. Results ranged from excellent to poor, with the cost per acre almost uniformly high and prohibitive for most landowners. In some cases fences were cut to allow outside cattle to feed in some of the developed plots. Despite setbacks, many of these plots were planted, or moved annually at considerable cost. Finally, the posts and wire were stolen, or moved from demonstration plots by persons unknown. The practice was abandoned.

Today, the Commission protects the bob-white quail from illegal hunting, fixes reasonably long seasons and good bag limits, uses controlled burning and depends in great part on a good pattern of summer rains so that our remaining ranges can reach their full potential each year.

It has been found that the two small game surveys used to illustrate the quail situation were reflected in squirrel management. The computed squirrel kill by licensed hunters in 1954-55 was essentially the same as reported following the 1967-68 hunting season. An estimated bag of the 2.8 million bushytails was indicated each year.

Intensive squirrel research during the past 20 years has revealed that natural populations fluctuate widely apparently with or without hunting. For example, the bag on a wildlife management area increased over 100% from one year to the next; but decreased over 50% from a good to a bad year—with the same hunting regulations in effect throughout a period of several years.

The present status is that Louisiana finds itself with about the same annual bag of squirrels while habitat in some cases has shrunken due to land clearing and slightly enlarged in other areas due to forest growth.

During the period being covered in this article, both hunters and field biologists have personally reached the conclusion that good fall populations generally follow a good mast crop the year before.

While many changes in rabbit populations have obviously occurred during the past 20 years; and habitat losses and gains have taken place, the most important observation has been in the amount of increased interest in hunting rabbits.

The small game surveys referred to earlier in this article show that the 1954-55 season indicated an approximate bag of 1.1 million rabbits by licensed hunters. The later survey showed an estimated bag of 2.1 million rabbits, or an increase through those years of one million additional rabbits bagged. The increase can be at-

tributed primarily to the growth of interest in beagles and more interest in rabbits as game. Regulations have recently been liberalized because the continued increase in seasons and bag limits have not affected the rabbit population.

Perhaps the greatest interest on the part of the greatest number of hunters reading this article in the 20th Anniversary Issue of the *Louisiana Conservationist* is in deer management. In 1948 deer were absent from most of the state. In many areas, the best herds of deer were confined to the larger swamps and inaccessible marshes. It can be truthfully said that only in portions of Tensas and Madison Parishes, at that time, had deer demonstrated that man and deer could exist in the same area. There was rigid protection from illegal hunting. As a result, deer herds in those parishes were expanding rapidly.

And, it was in 1948 that Louisiana began a deer restocking program that was destined to greatly alter the future of deer hunting in Louisiana. Deer were live-trapped from private lands and also purchased from out-of-state sources, with funds appropriated for game restoration.

The program gained momentum during the 1940's and early in the 1950's plans were made to live-trap deer from refuges and game management areas; while still continuing live-trapping of deer from private lands where they were overabundant. Out-of-state purchases continued as funds were available.

Ninety-two deer releases have been completed during the 20 year interval. Most of the releases resulting in building up herds of huntable deer, with only a few more of the most recent areas remaining closed to hunting while herds develop.

One good indicator of the success of the Commission's deer management program can be measured by the sale of big game licenses. First required in 1960, hunters bought 56,462. By the 1967-68 season, annual sales of these licenses had increased almost 60%. Sales for that season numbered 95,206. The reported kill for the 1960-61 season was less than 7,000 deer. The 1967-68 hunters success survey indicated a bag of 35,830 deer. An additional survey indicates that the past season alone experienced over one million man-hunting days for deer in Louisiana.

In the search for more game for a growing number of hunters, the Commission has turned to importation and experimentation with exotic game birds.

Since 1961, the Black Francolins, Asian game birds, have become established in Northwestern Cameron and Southeastern Calcasieu Parishes. This represents only one of several releases of exotic birds with already established populations.

Introductions of some other exotic birds have failed, with others too recent to fully evaluate. The potential is there, but this form of adding to other huntable game birds from abroad is a long-range program. It may be years before suitable species are obtained but eventually it will be done. The Chinese ring-neck pheasant is a good example of what has been accomplished in so many states that many of today's hunters feel that it is a native bird.

Thus far, only the Francolins appear to have all of the physical attributes of a great game bird. If it can do well in all of the habitat that appears to be similar to the present occupied range; it will provide a substantial addition to game bags in the prairie regions of Louisiana.

At the present time the Commission operates 24 wildlife management areas containing a total of 644,740 acres. An additional 86,000 acres are managed for public recreation in five public shooting areas. During the 1967-68 season, 14 of the wildlife management areas were open for deer hunting by daily permit only. There were 42,307 hunting efforts made by deer hunters. This response by the public has been good and there are many hunters who readily admit that without those wildlife management areas, they would not have a place to hunt.

All of these present public land management policies have evolved during the past 20 years. The first managed hunts for small game on wildlife management areas were held in 1954. The first deer hunt was in December, 1955, on Red Dirt Wildlife Management Area. It was for bucks only. In 1958, Chicago-Mills Wildlife Management Area was opened for the first doe season. In November, 1959, several of the wildlife management areas were opened for the taking of any sex deer. Regulations, today are aimed at providing maximum amount of recreation, consistent with the ability of the various areas to produce game.

In addition to deer hunting, squirrel and rabbit hunters and archery hunters seeking deer begin using these areas in October. Many of them are hunted for some form of small game until the close of the quail season in February.

These past two decades have seen many more advances. Twenty years ago the Commission did not have a District set-up to service the sportsmen. Now there are District Offices in Minden, Monroe, Alexandria, Ferriday, Lake Charles, Opelousas, Baton Rouge and New Orleans. Offices house all phases of the Commission activities and make it very convenient for the sportsmen to have close contact with the Commission and its activities.

Game management through the past two decades has been consistently improving. Mistakes have been corrected and much progress has been made. Louisiana is truly a sportsman's paradise and through research, cooperation of various state and federal agencies and the various sportsmen clubs of the State we can and will remain on top.

Wildlife Shorts

The pelican eats fish, but not the ones that are caught by the fishermen for food. Gulf sardines and silversides are the fish most caught. The state bird recently has become decreasing in numbers.

THE WHARF AFTER 20 YEARS

Claude Le Blanc

THE WHARF and the Marine and Radio repair department of the Commission, located in New Orleans on the New Basin Canal, near Lake Pontchartrain, has undergone many drastic changes for the better.

Major repairs by Wharf personnel have consisted of construction of 1200 square feet of working area for new offices and radio shop and the installation of central air and heat systems. Many of these repairs have been necessitated by storm damage.

The machine shop and outboard motor shops have been completely rebuilt and installation of modern testing equipment and tools for complete overhaul on all inboard and outboard engines has been effected. This includes facilities for major repairs to the newest inboard and outboard engines.

A new building, over water, for repairs to vessels and boats during foul weather was constructed for the Commission. This new building is 35 feet wide by 90 feet long. The building is also used for dry storage for craft standing by for repairs.

The Wharf is now also equipped to make repairs on all fiberglass boats owned and operated by the Commission. The unit operates with a crew of 24 who are on hand to do anything from minor engine adjustment to a major "haul-out" and hull repair.

The Wharf also operates its own stiffleg derrick which means that craft up to fifty feet in length are simply lifted from the water for repairs. The crafts are deposited into the docks, shorn up, and the workmen are able to begin their jobs with the workshop facilities right at hand. This effects a saving of time and labor.

Many pieces of equipment in need of repair or servicing are brought in to headquarters. However, when it is more economical, crews are sent out to effect repairs in any part of the state. The radio repair and installation section operates a completely equipped radio van, which conducts on the spot repairs.

The 170-foot radio tower at the Wharf has a clear range of statewide transmission of communications and receptions. Remote control through the main office makes it possible to have constant communications with planes, boats and mobile units and the other 28 towers, sometimes called "bases", throughout the state. The radio section also services and effects storm damage repairs to the commission's 28 radio towers bases located at strategic points.

The Commission's use of radio in 1948 was at first confined to Ship to Shore Marine Operator equipment used on several large patrol boats.

The wharf as it appeared 20 years ago. In two decades it has become the nerve center for all marine operations, from outboards to large patrol vessels.

First FM two way radios were purchased in 1949. Eight units made up the entire system. The base stations located at the wharf, New Orleans; port of entry Camp, Grand Pass; Oyster Seed bed Camp, Bay Gardene, and the duck hunting camp at Pass-a-Loutre. The aforementioned provided communication to the two radio equipped airplanes and boats. Several more units were purchased during the next five years and in 1954 the Department had a radio system composed of 13 towers throughout the state.

The need and the advantage of radio communications was by then obvious. Plans were set up for a proposed statewide system and in 1955 the money was provided for 170 mobile units and 13 base stations.

This basic system has been enlarged to the present 28 base stations, 50 portable and 450 mobile units that provide communications throughout the entire state.

The commission's marine equipment now consists of 600 outboard motors ranging from six to 100 horsepower, four hundred outboard hulls, ranging from 10 to 17 feet, and 72 vessels ranging from 19 to 60 feet.

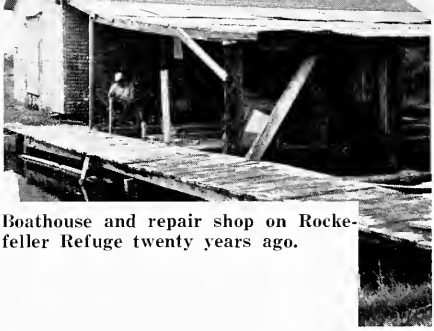
During the past 24 months there have been approximately 250 repairs to the commission's larger vessels, including overhaul, major repairs, haul-outs and engine repairs. During the aforementioned period there were major repairs to all motor boat trailers from 800 pounds to 6400 pounds capacity. Also, during that time there have been 500 outboard motor repairs.

The Wharf is fully equipped to test-run all new boats bought by the commission and begins work on these new craft as soon as they arrive.

Personnel at the Wharf also make repairs to damaged trawls, seines, plankton nets and other types used by the commission. An expert net-maker is employed to carry out these repairs.*

REFUGE PROGRESS

Allan Ensminger



Boathouse and repair shop on Rockefeller Refuge twenty years ago.

THE PAST TWENTY years have brought about some notable changes in the wildlife refuge system in Louisiana. Probably the most important is the recognition of the purpose and need of refuges in modern wildlife management. Twenty years ago Louisiana, along with many other states, was managing and maintaining areas through the state for the protection of upland game species. This is an archaic procedure and one which has no place in a practical game management program because of the simple fact that resident game species have a very limited home range. The old theory was that protected game would build up in a specific area and the surplus would spill over into surrounding areas. To a certain extent this is true; however, a much more practical approach to management is one of extensive law enforcement coupled with a good public educational program. This approach has replaced the need for upland game refuges in Louisiana and most of the old refuges have been converted into game management areas where an annual controlled harvest of surplus game is permitted by sportsmen.

The only refuges managed by the Wild Life and Fisheries Commission at the present time are migratory waterfowl refuges. These are the Rockefeller Wildlife Refuge located in Cameron and Vermilion Parishes; the State Wildlife Refuge in Vermilion Parish; the Marsh Island Wildlife Refuge located in St. Mary Parish; the St. Tammany Wildlife Refuge in St. Tammany Parish and the Coulee Wildlife Refuge in Morehouse Parish.

These areas serve as wintering grounds for hundreds of thousands of waterfowl and play an important role in the State's wildlife management program. The importance of these areas has been intensified by the change in land use of most of the coastal marshes of Louisiana. This change in the marshes began with the discovery of oil and other minerals along the Louisiana coast. The exploration for these minerals created conditions which radically affected the general ecology of the coastal marshes and brought about changes which were undesirable for wildlife. The coastal refuges were not immune to this, and conditions were altered on these areas due to the mineral activities.

At first the new-found source of revenues which the minerals brought to the State seemed to be a windfall. It was soon obvious that, along with this new found fortune, there were many problems which would require expenditures of revenues never dreamed of before. This was necessary in order to protect the marshes and maintain the refuges in accordance with the terms and conditions of their donations.

The changes were primarily brought about with the introduction of salt water into marshes which were formerly fresh to slightly brackish. The canals excavated and the levee deposits from this work changed the drainage pattern of the watershed adjacent to these activities. As the plant communities began to change, there was a general deterioration of the coastal marshes as productive wintering grounds for the millions of migratory waterfowl which spend the winter along our coast line.

By the mid-1950's it was obvious that correc-

Present facilities at Rockefeller Wildlife Refuge headquarters include housing for technical personnel, laboratory, boathouses, equipment storage buildings and numerous research ponds and pens.

tive measures would have to be taken especially on the coastal refuges if Louisiana was to maintain its status as a primary wintering area on the gulf coast. An intensive development program was initiated on Rockefeller and Marsh Island Wildlife Refuges at this time. One 9,000 acre impoundment was constructed on Marsh Island and numerous impoundments, totalling approximately 19,000 acres, were constructed on the Rockefeller Wildlife Refuge. Prior to the construction of these impoundments, waterfowl inventories on the Rockefeller Wildlife Refuge indicated a wintering population of fifty to seventy-five thousand ducks. During 1967 inventories on this same area revealed a wintering population of 600,000 ducks with approximately 80% of these birds utilizing the impoundment areas.

Some of the impoundments were created through the utilization of levees deposited by oil companies. However, extensive expenditures were necessary to excavate material for new levees and to repair the existing ones. This work made it possible to regulate water conditions in the impoundments to a certain degree, and this manipulation has been used to create conditions desirable for the production of waterfowl food plants. Additional latitude has been added to management of some of the impoundments by the installation of concrete water-control structures of a stop-log type and in other impoundments by the installation of large double divergent pumping units.

The impoundments are not only attractive to wintering populations of waterfowl but are also heavily used by tremendous numbers of transient shore birds.

These areas are also quite beneficial to alligators as they provide stable water conditions which assures the alligators of good conditions for nesting and rearing of their young.

In recent years the development program on Marsh Island and State Wildlife Refuges have been primarily through the construction of low level weirs which stabilize water conditions during periods of low tides in the Gulf of Mexico. The crest of these structures is established at approximately six inches below marsh elevation and thus prevents the complete drainage of many shallow ponds and bayous. This condition encourages the growth of desirable aquatic plants as well as stabilizing water conditions in the general marsh area which also encourages the growth of good wildlife food plants. The general watershed pattern of these two areas lends itself to this type of development work quite well. This type of work is much more economical and desirable than the impoundment approach utilized extensively on Rockefeller Wildlife Refuge. Waterfowl inventories on Marsh Island and State Wildlife also reveal a tremendous increase in the usage of these two areas.

The St. Tammany Wildlife Refuge has served as a small resting area for waterfowl along the north shore of Lake Pontchartrain. This area is quite small and limited in its usefulness; however, it does serve a useful purpose in that it provides a place into which waterfowl can retreat to escape gunning pressure being applied by sportsmen hunting in the adjacent marshes.

The Coulee Wildlife Refuge was established through the efforts of local sportsmen to provide a resting area for wintering waterfowl utilizing the large Wham Brake section near Monroe. Approximately 30,000 ducks have utilized this area since its establishment. The area is made available to the Louisiana Wild Life and Fisheries Commission free of cost by the private landowners and plays a very important role in waterfowl hunting in the general Monroe area.

The past twenty years has brought about the development of new facilities on the refuges in order to house personnel and to provide workshop and storage facilities for the tremendous amount of equipment and supplies required to properly manage and maintain the refuges.

Present research facilities at Rockefeller Refuge provide all necessary conditions for studying various wildlife species.

Rigid protection has encouraged a large build-up of alligators on Refuge areas.

The revenue received from minerals on these areas have not only been used for the development and maintenance of the individual area but has served as a source of funds from which over 100,000 acres of property have been purchased for game management areas. These areas will serve future generations of sportsmen with a place to hunt and fish and enjoy the outdoors. In addition to this, funds have been utilized from the Rockefeller Refuge to establish a statewide conservation educational program which has served to acquaint thousands of students as well as adults with the overall wildlife management programs being conducted by the Commission.

Research activities which are conducted on the wildlife refuges serve as guide lines for private landowners in the management of their property. Perhaps the most important of these research activities has been the broad general study made by research personnel of the many factors involved in the general ecology of the Louisiana marshlands. Information gained in these studies has provided data for practical and economically feasible methods by which marshlands can be managed to produce annual crops of plants which are desirable for use by wildlife.

Another extremely important research program being conducted deals with the general life history and management of alligators. This valuable marsh animal was on the verge of becoming extinct during the early 1960's. Efforts made by the Commission to protect the animal have resulted in a good recovery in the marshes of Southwest Louisiana. Several thousand animals have been moved from the refuge areas and distributed into the surrounding marshes in an effort to re-establish a breeding population in desirable marshes.

Research work is being conducted at Rockefeller Refuge to determine the feasibility of producing various types of commercially important fish in control ponds in the marsh. This work will be extremely valuable to marshland owners and should contribute substantially to the economy of the state.

Development and maintenance work on the refuges is a continuing process and one which will require considerable funds in order to maintain these areas for wildlife.

Future plans include the establishment of additional water control areas as well as more intensive control over existing facilities. The control of fur bearing animals will continue to play an important role in the refuge program in order to hold these animals in balance with their habitat.

Research activities will be continued and expanded in order to utilize the areas to their fullest extent and to provide information for private landowners in the management and protection of their marshes as wildlife areas. ✠

Twenty years ago the Nutria was one of the Commission's boats. It is no longer in service and today's patrol boats and fleet of inboards and outboards are modern, fast and dependable. Maintenance is handled by the wharf's crew in New Orleans. Facilities at the wharf are available for major repairs of large vessels to repairing outboard motors. The main radio service department is also located at the New Orleans wharf.

Twenty Years of

WATER POLLUTION CONTROL

Thomas J. Gilbert

A HISTORY OF WATER POLLUTION would parallel in time that of civilization. Wherever and whenever man has massed, water has been used as a vehicle to transport his waste. Some water courses reached their waste carrying capacity centuries ago. Historians tell that the fall of once mighty Rome was hastened due to the breakdown of its waste disposal system resulting in sickness and death of many of its citizens due to water borne diseases. The once proud Inca nation of our own hemisphere is said to have vanished due as much to its own defilement as the genocide inflicted by its Spanish conquerers.

Even so, man paid little heed to the lessons written in the decayed ruins of ancient civilizations. However, with the event of the industrial revolution and the tremendous increase in man's ability to pollute his environment an apathetic civilization was forced to seek means to save itself. Progress was slow and erratic. First laws were passed prohibiting the pollution of waters. Then, as it were, some distance behind the cart came the team of horses, the disciplines that determine the effects of waste materials on the total aquatic environment and the art and science of waste treatment. With the exception of the knowledge of the treatment and pollution effects of domestic wastes the team of horses had not long been in view in Louisiana when the events of this past score of years hereinafter chronicled began.

The structure of the water pollution control authority for Louisiana (previously described in several past issues of the Louisiana "Conservationist") was very much the same in 1948 as it is today. The Louisiana Stream Control Commission, created by an Act of the Legislature in 1941, was charged with the responsibility of promulgating rules, regulations and orders to control industrial waste discharges and to abate water pollution. At this time the enforcement and technical arm of the Stream Control Commission was known as the Division of Research and Statistics of the Department of Wild Life and Fisheries. Since the formation of the Louisiana Wild Life and Fisheries Commission in 1952 this division has been the Division of Water Pollution Control, a title more fitting its responsibilities.

From 1948 to 1951 enforcement of regulations pertaining to existing pollution was the primary endeavor of the Louisiana Stream Control Commission. However, basic research of the effects of waste water on the aquatic environment had already reared its fruitful head. In 1947 the Louisiana Petroleum Refiner's Association began a grant program for qualified graduate students of Louisiana State University to determine the toxic effects on aquatic organisms of the various components of refinery wastes. This research program is supervised by the Division of Water Pollution Control and Louisiana State University's Department of Zoology and continues to this day. The application of new waste treatment techniques originating from the findings of this research program would be a story in itself, so no further treatment of this program's accomplishments will be given here.

Oil field brine being discharged to fresh water bodies. By orders of the Louisiana Department of Conservation and by the Louisiana Stream Control Commission in 1968, discharge of oil field brines to fresh water bodies is no longer allowed.

In 1951 the adoption by the Louisiana Stream Control Commission of a regulation requiring the submission of reports for the discharge of industrial waste and for the construction or alteration of treatment works began a new era in Louisiana with respect to water pollution control. Simply stated, rather than have to prove that a discharger of waste in polluting, as was the case prior to 1951, the prospective discharger must now prove to the Stream Control Commission that he will not pollute. All permits to discharge wastes approved by the commission are revocable if pollution occurs. However, those industries discharging wastes prior to the adoption of this regulation were excluded. Even so, this regulation provided needed impetus for a search of better methods of waste control and increased waste treatment technology of those wishing to discharge waste water into Louisiana's streams.

Realizing the need for a trained technical staff the Division of Research and Statistics began recruiting chemists, biologists and engineers in the 1940's; by 1951 this staff included four engineers (one being director of the division), two biologists, one chemist and three semi-technical waste disposal inspectors. The battle for clean water began in earnest. Significant in the accomplishments of the Stream Control Commission and its staff in the early and middle 1950's was the reduction and near elimination of waste crude oil discharges to state waterbodies. More effective control of the discharge of oil field brines to fresh water bodies was attained and due to good enforcement and increased knowledge of waste control and treatment technology, a substantial reduction in the pollutional loads created by industrial discharges of organic waste, notably sugar mills, paper mills and food processing plants.

But all was not well. The industrial growth in Louisiana beginning after World War II presented previously unforeseen problems to the water pollution control authority in Louisiana. Massive discharges containing exotic waste became the rule of the day. Only limited knowledge of the immediate effects of these wastes on the receiving streams could be ascertained, and, in most cases, the long range effects could not be judged. Technology of treatment of most of these wastes was also woefully lacking. One has only to scan the figures compiled by the Louisiana Department of Commerce and Industry to understand how rapid this industrial growth has been. Industry was investing at the rate of 1¼ million dollars a day in 1956, $595,194,706 for the year 1967 and continuing to $258,522,647 thus far in 1968. Industrial waste water discharges in Louisiana tabulated through June 1966, exceeded 4.5 billion gallons per day. Although still lacking in adequate knowledge to render harmless his wastes, man was able to create a substance so toxic and residual that an introduction of a comparative dribble of it into the waters of the Mississippi River killed millions of fish and other aquatic life from far upstream to and through the passes and mouth of the Mississippi and

Massive fish kill resulting from misuse of pesticides. These occurrences were frequent in the 1950's and early part of the 1960's.

Atchafalaya rivers. This fish mortality began in 1960, it did not completely recede until 1963. The causitive agent (Endrin) was found in the tissues and blood of all stricken fish examined.

An aroused public rose in full force to protect this needless destruction of our natural resources and contamination of our water supplies with long life highly toxic pesticides. The result—agricultural interests are encouraged to use, and for the most part are now using, short life pesticides for noxious insect control. This method of control for this type of pollutant is still under study and evaluation, however, here in Louisiana there has been a marked decrease in pesticide caused fish kills in recent years.

The years from 1960 to the present have been the most productive from the standpoint of those interested in water pollution abatement. The passage of adequate laws, rules and regulations, both state and Federal, have caused increased efforts on the part of industry to control and/or adequately treat its waste water. Monies have been made available to private concerns and governmental agencies engaged in the never ending quest to render our waste harmless. The technical personnel of the Division of Water Pollution Control although not having been significantly increased in numbers, have been equipped with modern and highly sophisticated equipment for the detection and measurement of water pollutants.

All of this is needed and more if we are to properly implement and enforce the water quality standards adopted by the State of Louisiana in 1967, as required by the Federal Water Pollution Control Act of 1965.

The present status of water pollution control in Louisiana might be summed up by citing, in part, Items 13 and 14 of the Plan for Implementation of the Louisiana Water Quality Standards:

Item 13—Domestic Waste

A resolution has been adopted by the Louisiana State Board of Health condemning the discharge of raw sewerage to public waters.

Secondary treatment will be the minimum degree of treatment accepted.

Item 14—Industrial Wastes

The commission prescribes that all such wastes will receive the best practicable treatment, secondary or its equivalent, at all times, not later than the end of the calendar year 1972. ✠

PAST AND FUTURE OF WATERFOWL

R. K. Yancey

IF EVER A WILDLIFE pedestal is erected in Louisiana many of the State's sportsmen will insist that migratory waterfowl be placed on top. As a result of this view and because of the high quality sporting aspects of wildfowl hunting, ducks and geese have received preferential treatment since the turn of the century in this State.

Vast refuges, waterfowl management areas, privately owned marshland tracts, and millions of dollars have been set aside to benefit waterfowl and perpetuate this great renewable resource for the future. No other form of wildlife has been so carefully studied, re-studied, managed and sometimes mis-managed at the Federal, State, and private level.

Because of differences of opinion as to what is best for waterfowl, decisions affecting these birds have oftentimes been surrounded by flaring tempers and heated controversy. This has held particularly true in the establishment of hunting seasons and bag limits because it is here that the sportsman reaps the dividends from expensive investments in waterfowl management.

At times the crucial habitat destruction problem has been forgotten because of major and unnecessary battles that sportsmen have had to fight in recent years to obtain reasonable hunting regulations. From one end of the continent to the other drainage or excessive flooding of shallow water wetlands essential to waterfowl has and is taking place. Only the army of sportsmen, who provide the backbone of support for expensive waterfowl management programs are standing in the way of additional destruction of thousands of irreplaceable waterfowl areas. Yet this same group has had to fight a continuous battle to keep the waterfowl leadership in Washington from destroying the sport of duck hunting.

Habitat is the key to the future of waterfowl and it must be preserved at all costs. This includes the potholes on the Prairies of Western Canada where the ducks breed, the marshes of Louisiana where they winter, and the wetlands in between. The sport of duck hunting creates the incentive needed to do at least part of the job and hunting seasons and bag limits should be established to hold and increase this interest. The hunter who enjoys a wintry day afield with pirogue, shotgun, and retriever is the best friend that waterfowl has and his good will should be cultivated not antagonized by unrealistic regulation. To do otherwise is a sure sign of poor management and leadership.

During the past two decades intensive land management programs to benefit wildfowl have been carried out by the State, the U. S. Fish and Wildlife Service, private landowners, and hunting club lessees. Refuges in Louisiana now occupy 500,000 acres. Waterfowl Management Areas where hunting is permitted comprise 135,000 acres with another 55,000 acres of marshes to be purchased by the Commission and added to the total within the near future.

Marsh management involving levee construction is expensive in coastal Louisiana. Duck hunters, however, are willing to make investments of this type to insure the future perpetuation of the waterfowl resource.

Major improvements benefitting waterfowl have been made on all of the refuges and game management areas. In addition a large portion of the 3.5 million acres of marshland under private ownership in coastal Louisiana is being managed for waterfowl. Major efforts have been made to save many of the State's existing wetland areas. For example Catahoula Lake in central Louisiana is the most important single duck area of its size in the state and perhaps the entire flyway. This 21,000 acre area was saved from destruction in connection with a major navigation project only by a concerted effort on the part of sportsmen.

Not all waterfowl areas, however, have fared so well in the state. Hundreds of small cypress brakes formerly productive of wood ducks and used by wintering waterfowl have been drained and cleared for agricultural purposes. A number of large impoundments have been constructed in western Louisiana but these have meant little to ducks due to excessive water depths. Ducks prefer shallow water only a few inches in depth.

Rice fields have always been heavily used by

both ducks and geese. Mallards have also adjusted to soybean fields and are now using these extensively during the late winter in central and northeast Louisiana.

Louisiana sportsmen have contributed generously to Ducks Unlimited. This private conservation organization stretches each dollar it receives and uses it where it will do the most good on the waterfowl breeding grounds of Canada. Many thousands of ducks winter in Louisiana each year that are produced on the Ducks Unlimited created marshes of western Canada. More dollars to D. U. will mean more ducks down the flyways each fall and this is a matter that sportsmen would do well to keep in mind. Opportunities for waterfowl development on the breeding grounds are limited only by available funds. Louisiana sportsmen working independently and through the Wild Life and Fisheries Commission annually contribute an average of $65,000 to Ducks Unlimited and this has amounted to $982,070.00 since 1953.

Law enforcement, an essential element in waterfowl management, has been emphasized by the Louisiana Wild Life and Fisheries Commission for the past two decades. State agents have worked hand in glove with U. S. Game Management Agents in controlling illegal hunting.

In addition to habitat management work and law enforcement the Commission has carried out numerous research projects on factors affecting waterfowl during the past two decades. Marsh Management techniques, waterfowl migration and distribution, and hunter kill surveys are but a few of the subjects that have been studied intensively during this period.

Waterfowl movements within and through the State have been carefully measured since 1951 by means of aerial inventories during the fall, winter, and spring. The findings have proven invaluable in planning waterfowl management programs in the State. In essence nine to ten million ducks and geese commonly use Louisiana at different times during the year. Some species nest here and are present year-round. Migrants are on hand for a nine month period between August 15 and May 15. All species of waterfowl common to the state generally fall into one of four categories and these are: 1. Year-round residents. 2. Summer residents. 3. Transients. 4. Winter residents. The year-round residents include mottled ducks, numbering over 100,000 that are found in the coastal marshes and rice fields of south Louisiana. Also wood ducks that are found in or adjacent to woodland areas. These birds winter in Louisiana, as well as produce their young here during the spring and summer.

The fulvous tree duck is a summer resident that nests in the rice fields and migrates southward from Louisiana in the fall. They depart in October and do not reappear until the following spring.

Transients are considered to be ducks that migrate southward through Louisiana from the northern breeding grounds in the late summer and early fall and winter in Mexico, Central and South America. In the spring these ducks migrate back through Louisiana on their return trip to their breeding grounds in Canada and the north-central United States.

In the aggregate the transient flights probably total four or five million ducks and mainly include blue-winged teal, pintails, widgeon, shovellers, scaup, gadwall, and green-winged teal. The principal period during which the transients are moving southward through Louisiana extends from August 15 to November 15. The return flight is spread over the period between February 1 and May 15.

Pintails rise out of a marsh managed for waterfowl in southwest Louisiana. Wetlands of this type must be preserved for future use by ducks.

Potholes and marshes in western Canada produce most of the ducks that winter in Louisiana. Ducks Unlimited is doing a fine job there. Habit preservation is the key to the future of waterfowl.

The blue-winged teal is almost entirely transient although a few stragglers do over-winter in the coastal marshes of Louisiana. Substantial numbers of the other species remain in Louisiana for the winter.

The blue-winged teal is the first transient to appear in Louisiana in the late summer. The vanguard of this flight always arrives between August 10 and 15. The migration hits its peak between September 10 and October 20 with a constant flow of these ducks moving through the state during this interval.

Pintails are the second transients to arrive on the heels of the first blue-winged teal flight. A few pintails always show up the last few days of August but substantial numbers do not arrive until late Spetember. The migration hits its peak between October 15 and November 15. Although many pintails move on through the State several hundred thousand consistently remain to winter in the marshes, the rice fields and at Catahoula Lake. These ducks are continuously moving through Louisiana during the fall but those that usually arrive after mid-November stay for the winter.

Widgeon or baldpate begin arriving in mid-September and their migration hits its peak between October 10 and November 10. While many of these ducks move on through the State substantial numbers stay over for the winter.

Shovellers show up in early September and their peak migration occurs between October 1 and November 15. Many of these ducks move on through the State as transients but great numbers remain throughout the winter in the coastal marshes. The flight pattern of the green-winged teal is similar to that of the shoveller.

Although a few gadwall arrive in the state in late September a major flight does not occur until the period between October 25 and November 15. A few of these ducks are transient to Louisiana but most stay over for the winter after arrival.

The lesser scaup, or "dos gris" migration is usually massive and spectacular. It has consistently occurred over the past 20 years between October 25 and November 10. Most of these ducks move on through the state to more southerly wintering grounds but several hundred thousand usually remain in the salt water areas of coastal Louisiana for the winter.

Winter residents include mallards, black ducks, wood ducks, ringnecked ducks, canvas backs, redheads, ruddy ducks, mergansers, and some member of all transient species listed above except the fulvous tree duck. Louisiana usually attracts and holds about 450,000 geese, including blue geese, snow geese, Canada geese, and whitefronted geese. Most of the world's populations of blue geese winter in the coastal marshes of this state.

October is the main arrival period for most of the geese that winter here. A few blue geese and snow geese arrive in early October but the main migration period is between October 15 and November 10 with the peak occurring between October 20 and October 27. Louisiana usually winters 350,000 to 400,000 blue and snow geese, of which about eighty-five to ninety percent are blue geese. Canada goose numbers seldom exceed 10,000, while the wintering flocks of whitefronted geese usually number less than 40,000.

Many of the coots that arrive in Louisiana in the fall move through to more southerly wintering grounds, however, Louisiana always overwinters large numbers of these birds. They first appear in early September and the migration usually hits its peak between October 15 and November 1.

Waterfowl hunting in the State has also been a subject of wide study for the past 18 years. The table on duck stamp sales shows that hunter numbers reached an all time peak in the State in 1967. In 1962 and 1963 stamp sales plunged to a deep low when duck seasons and bag limits were cut to the bone.

In 1966 over 850,000 individual duck hunts were made in Louisiana and these trips resulted in a harvest of over one million ducks and one hundred thousand geese.

The special nine-day September teal seasons held in 1965, 1966, and 1967 also provided a great amount of outdoor recreation for Louisiana hunters. In 1967 approximately 69,000 hunts were made and over 160,000 teal were bagged. The early teal hunt has been arbitrarily cancelled this year but should be continued in the future since it is the only means of harvesting blue-winged teal that migrate through in advance of the regular duck season. Sound game management principles call for proper utilization of underharvested species, such as blue-winged teal and to do otherwise is poor conservation.

Hunting season dates and bag limits on ducks have varied widely for many years as shown in the table. Species management has been practiced for over 30 years and this practice will, no doubt, be continued. Split seasons have rarely been selected by the State because of the ten percent penalty in number of hunting days. The advantage of the split season lies in the fact that hunting would be permitted in early November while the southbound transient flights are passing through Louisiana. The second segment of the season could then run to the end of the Federal framework when the greatest population of winter residents are on hand.

DUCK STAMP SALES

	Louisiana	Mississippi Flyway	Atlantic Flyway	Central Flyway	Pacific Flyway	United States Total
1934	20,081	266,649	104,797	157,843	105,712	635,001
1935	10,242	205,967	53,763	109,697	78,777	448,204
1936	13,721	303,737	64,627	122,934	112,325	603,623
1937	19,366	383,433	90,525	168,502	140,579	783,039
1938	31,190	493,302	125,800	213,121	170,492	1,002,715
1939	33,870	536,951	152,926	223,903	197,781	1,111,561
1940	43,079	566,894	193,129	264,874	232,264	1,260,810
1941	45,102	632,227	218,909	308,240	277,986	1,439,967
1942	44,252	622,497	215,432	302,098	240,195	1,383,629
1943	35,199	510,339	180,470	236,247	237,135	1,169,352
1944	45,455	593,079	236,575	349,709	300,102	1,487,029
1945	56,876	692,573	276,106	413,589	332,348	1,725,505
1946	53,490	824,751	302,256	496,882	382,043	2,016,841
1947	62,998	719,566	214,136	420,404	357,828	1,722,677
1948	80,701	874,552	271,563	552,148	418,083	2,127,603
1949	71,923	824,693	231,478	485,580	405,268	1,954,734
1950	71,834	786,547	239,902	480,919	390,134	1,903,644
1951	74,339	919,239	259,508	557,051	426,062	2,167,767
1952	83,072	989,059	311,746	505,174	477,662	2,296,628
1953	92,478	945,857	341,049	511,910	459,790	2,268,446
1954	88,237	922,082	343,680	478,374	427,590	2,184,550
1955	106,316	1,019,145	387,035	523,630	430,597	2,369,940
1956	102,734	1,022,695	378,753	491,272	428,487	2,332,014
1957	102,224	1,004,555	356,800	555,525	427,799	2,355,353
1958	91,803	931,544	325,817	501,672	396,809	2,165,562
1959	66,734	707,649	233,246	370,776	310,861	1,628,365
1960	63,741	746,643	265,195	383,449	327,204	1,727,534
1961	43,300	528,542	232,956	279,903	297,042	1,346,003
1962	39,766	411,981	237,033	279,903	297,042	1,147,553
1963	66,672	572,310	270,417	264,169	324,290	1,455,486
1964	86,162	663,773	284,756	281,944	323,946	1,565,860
1965	81,322	636,470	301,096	259,804	343,279	1,550,055
1966	105,398	758,768	336,472	310,969	379,798	1,804,783
1967*	108,371	791,854	339,288	357,094	377,810	1,876,383

*Some figures based on 3/4 year sales.

In addition to the tremendous amount of outdoor recreation offered by waterfowl hunting this sport is also important economically since millions of dollars are spent annually by the hunters. This no doubt amounts to as much as $16,000,000 during some years.

Land use trends have generally been against waterfowl during the past 20 years as many wetland areas have been lost through drainage or excessive flooding throughout the length of the continent. While much has been accomplished on behalf of waterfowl a reversal in the overall trend of habitat loss must be made because there are not wetlands to spare. The future depends upon you! ✠

Duck hunting is a great outdoor sport in Louisiana. Here 5 out of 100,000 waterfowlers display widgeon and pintails bagged at Pass-a-Loutre. You can bet this group will support programs designated to perpetuate waterfowl.

LOUISIANA DUCK SEASONS

1930—1962

Year	Season	No. of Days	Bag Limit
1930-31	Nov. 1-Jan. 31	92	25
1931-32	Nov. 16-Dec. 15 & Jan.	61	15
1932-33	Nov. 16-Jan. 15	61	15
1933-34	Nov. 16-Jan. 15	61	12 per day not to exceed 8 of any species
1934-35	Nov. 2-Jan. 6, (Friday, Saturday and Sunday)	30	12 per day with only 5 in the aggregate of redheads, canvasbacks, eiders, greater and lesser scaup, ringnecks, 3 teals, shovelers & gadwall
1935-36			
1936-37	Nov. 26-Dec. 25 (7 A.M. to 4 P.M.)	30	10
1937-38			
1938-39			
1939-40	Nov. 15-Dec. 29	45	10 per day with only 3 in the aggregate of canvasbacks, redheads, buffleheads, ruddy ducks or one of all 3.
1940-41	Nov. 2-Dec. 31	60	10
1941-42	Nov. 2-Dec. 31	60	10
1942-43	Nov. 2-Jan. 10	70	10-3 redheads or buffleheads.
1943-44	Nov. 2-Jan. 10	70	10
1944-45	Nov. 2-Jan. 20	80	15 of which 5 must be mallard, pintail or widgeon.
1945-46	Nov. 2-Jan. 20	80	10*
1946-47	Nov. 23-Jan. 6	45	7*
1947-48	Nov. 18-Dec. 17	30	4*
1948-49	Nov. 12-Dec. 11	30	4*
1949-50	Nov. 18-Dec. 27	40	4*
1950-51	Dec. 2-Jan. 5	33	4*
1951-52	Nov. 2-Dec. 16	45	4*
1952-53	Nov. 5-Dec. 29	55	4*
1953-54	Nov. 17-Jan. 10	55	4*
1954-55	Nov. 1-Nov. 25; Dec. 17-Jan. 10	50	4*
1955-56	Nov. 5-Jan. 13	70	4*
1956-57	Nov. 1-Nov. 25; Dec. 7-Jan. 13	63	4*
1957-58	Nov. 2-Jan. 10	70	4*
1958-59	Nov. 1-Jan. 9	70	4*
1959-60	Nov. 26-Jan. 4	40	4*
1960-61	Nov. 4-Nov. 15; Dec. 16-Jan. 8	36	4*
1961-62	Nov. 10-Nov. 29	20	3*
1962-63	Nov. 30-Dec. 24	25	2*-2 bonus lesser scaup
1963-64	Nov. 29-Jan. 2, inc.	35	4*
1964-65	Nov. 21-Dec. 30, inc.	40	4*
1965-66	Dec. 1-Jan. 9, inc.	40	4*
1966-67	Nov. 18-Jan. 1, inc.	45	4*
1967-68	Nov. 18-Dec. 27, inc.	40	4*

*Special restrictions on certain species applied during these years.

First Season in 1918

Mourning Dove Management

Larry Soileau

THE MANIPULATION of hunting seasons and limits is the only practical tool yet devised for managing the mourning dove, hence the history of dove management is documented in the hunting regulations of the past. The mourning dove is subject to the terms of the Migratory Bird Treaty Act; therefore, both season length and bag limit are determined by Federal regulation.

Louisiana's first dove season set by Federal regulation in 1918 began in mid-September and extended through the end of December with a bag limit of 25. These liberal hunting regulations were gradually restricted to 30 days of hunting and a bag limit of eight birds by the late 1940's.

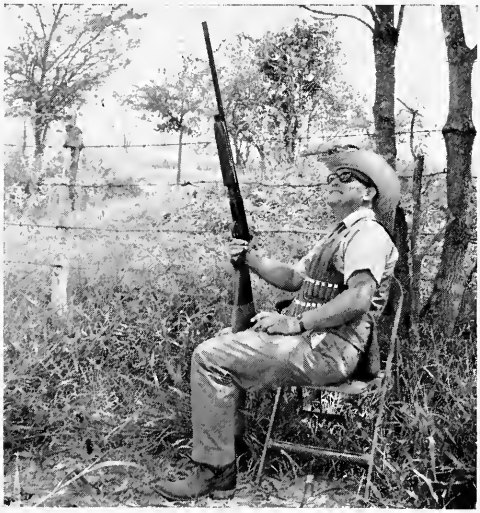
Dove biologists in Louisiana and other Southeastern states, where dove hunting is an important sport, had long suspected that such restrictive hunting regulations were unnecessary for the perpetuation of the dove population and were depriving hunters of much recreation. They contended that there was no biological evidence to support these restrictive hunting regulations.

Therefore, in 1948 exactly 20 years ago, the Southeastern states joined together in order to gather biological information for realistically managing the mourning dove resource. This research study continued for eight years and revealed some astonishing facts. It revealed, for example, that mourning dove populations are dynamic—they do not remain stable for long periods of time. As a matter of fact, the population is reduced by 70% in the winter with hunting making up only a small part of this mortality. Another product of this study was the development of a method of measuring the annual breeding population. This measurement is obtained by counting the number of cooing doves during the spring nesting season along predetermined routes throughout the country.

Armed with information collected during this study, the states demanded that the U. S. Fish and Wildlife Service embark on a realistic dove management program. The result has been a reversal in the restrictive trend of hunting regulations to one of liberalization which was culminated in the present 70 days of hunting and bag limit of 12 birds. A measure of the spring breeding population has shown virtually no change during this period of gradually relaxed hunting regulations. This stable breeding population has amazed some dove managers in view of the fact that the season length has more than doubled and the bag limit has increased by 50% during the past 20 years. The present regulations have resulted in a kill of 20 million doves annually in the Eastern Management Unit (approximately two million in Louisiana) from a pre-season population of 150 doves.

The fact that the dove population is able to

A good retriever gets an early workout on doves.



Some people do their dove hunting the easy way.

thrive under the present liberalized hunting regulations demonstrates that gross underharvesting through overly restrictive regulations has occurred for many years in the past.

Hunting regulations are imposed with the principal objective of providing maximum recreation while keeping hunting mortality within the ability of the species to reproduce and recover the following year. Yet it is not known exactly what effects such regulations have upon kill.

Therefore, in 1966, 10 years after the termination of the first dove study, the Southeastern states have once again joined together in order to investigate the effects of hunting regulations on the dove population. This is one of the few times in the history of wildlife management when research has been initiated while a wildlife species is still abundant. Wildlife research has generally been prompted by a shortage of hunting opportunity. With the present approach, it is hoped that dove managers will learn to wisely use their only practical tool, the manipulation of hunting regulations.

No discussion of the Louisiana dove management program would be complete without mention of the 3-way split season introduced in 1962. This statewide split season has served to satisfy the demands of hunters in different sections of the state, each group wishing to hunt when birds are most abundant locally. This type of season, however, has the disadvantage of permitting hunting in a portion of the state during part of the split season when the dove population may not be of a level suitable for hunting, or when such hunting may not be desired by the sportsmen and hence the objection to a September dove season.

The initiation of the present September hunting season in 1954 has stirred up much controversy. Most of the cries have been that September hunting has resulted in a large harvest of very young birds and adults which are still incubating or feeding young.

Studies conducted in the state, however, have revealed that a September hunting season has greatly increased the harvest of locally produced doves and provided hunting opportunity to many portions of the state during the only period when doves were present in huntable numbers. Therefore, available data indicate that September hunting is indeed sound dove management.

While changes in the land use practices of the past 20 years have adversely affected most of our game species, mourning dove populations may well be expanding as an increased human population requires the clearing of more land for agriculture. In this state alone the conversion of over a million acres of hardwood timber into farmland attractive to dove production has occurred during the past five years.

If the present trend of interest in research and sound management is sustained for the next 20 years, the mourning dove picture is bright indeed. Let us hope that a sound management program will be documented by realistic dove hunting regulations in the future. ✠

Thoroughly enjoying an early season dove hunt are Terry and A. L. Doughty and Ricky and Laten Bridges of Rayville.

Wildlife Shorts

Interesting and familiar to us is the Canada goose. It can be seen flying in "V" formation high overhead in the fall and spring.

The mallard is one of the most common and most-relished ducks in the winter. It is often called the "French Duck."

The flicker is known by many different names. The most common of which, perhaps, is "Yellowhammer." This is Louisiana's only brown woodpecker.

The indigo bunting is sometimes found in Louisiana in the summer, but during migration it is common. It is a little bird, about the size of an English sparrow. The male is blue; the female pale brown with paler underparts.

Many kinds of crabs inhabit Louisiana Coastal waters, but only three are eaten by human beings, and only the species enters the commercial fishery. The rest are mostly small species which are consumed by creatures of the deep, including each other, for crabs are cannibals of the highest order.

Louisiana's common crab is known as the "blue crab". In our rich subtropical waters, it is really more greenish than blue. We also have that rare delicacy, the stone crab.

The bald eagle has only two natural enemies, man and the great horned owl. The latter has been known to rout them from their nests. The bald eagle is scarcely seen in Louisiana nowadays and in other parts of the country.

Louisiana bow hunters have a patron saint, whether they know it or not. St. Hubert, who died about 727 A.D., was a heathen bow hunter. Once, on Good Friday, a stag with a shining crucifix between his antlers, appeared to him. Hubert was converted and eventually became a bishop. St. Hubert's day is November 3.

PASS-A-LOUTRE DELTA DUCKS

Ted Joanen

DUCK HUNTERS on Pass-a-Loutre Public Shooting Area, located on the lower delta marshes of the Mississippi River, experienced excellent hunting during the 1967-68 waterfowl season. On 22 morning hunts, with sportsmen participating from throughout the state, 5,123 birds were bagged. Sportsmen also experienced one of the mildest duck seasons weatherwise in many a year. Average monthly temperatures for November and December recorded by the Boothville Weather Station were 62.9 and 60.1 respectively. The marshes were in excellent condition with an abundance of natural foods and served to winter many thousands of waterfowl, also favorable weather provided better hunting conditions.

Since its initiation in 1954 the Pass-a-Loutre Hunting program has played host to many thousands of duck hunters throughout the state. This tract of land was set up by an act of the 1921 Louisiana Legislature as a public shooting area and is located at the extreme end of the Mississippi Flyway in Plaquemine Parish. During the past waterfowl season the Refuge Division of the Louisiana Wild Life and Fisheries Commission operated nine public camps and provided transportation from Venice to the hunting area and return. All was made ready for the first group of hunters who arrived on November the 17th. Eleven hunts were conducted throughout the season, each hunt lasting two days plus an additional day for traveling. Shooting was allowed on four mornings each week, Tuesday, Wednesday, Saturday and Sunday. This prevented over shooting the area and maintained a huntable concentration of birds throughout the entire duck season.

Interest in duck hunting at Pass-a-Loutre has steadily increased year after year with over 1,939 applications received this year. Applications came from all parts of the state including Monroe, Shreveport, and Alexandria, although the majority of these applications came from the New Orleans, Baton Rouge, Hammond and Covington areas. Applications were received from Mississippi although first choice was given to Louisiana hunters. A total of 792 permits were issued with 697 hunters making the trip.

The total kill for waterfowl by hunters participating in the public camp hunting program for the 1967-68 waterfowl season is presented in Table 1. Gadwall ranked first in the bag with 1,527 birds killed. This made up 33 per cent of the total ducks killed. Pintail was second with 827 birds taken, and baldpate was third with 754 birds killed. Lesser scaup ranked fourth with 406 birds tallied. The scaup moved inland about mid-season and at that time appeared in the hunters bag not only as bonus ducks but in some cases made up the entire bag limits.

The average daily kill per hunter effort (3.2) equaled that of the record breaking season of 1966-67. This could be attributed to several factors. First with the early season opening hunters could take advantage of the high tides caused by the prevailing southern winds. This made hunting easier as all parts of marshes were easily accessible to the hunters. Also, the hunters as a general rule who are not familiar with the area were better able to select their hunting blinds.

Table 1

TOTAL KILL BY SPECIES FOR PASS-A-LOUTRE PUBLIC CAMP

1967-68 WATERFOWL SEASON

	Hunt Number											
	1	2	3	4	5	6	7	8	9	10	11	Total
Mallards	18	12	19	17	20	15	13	5	9	7	8	143
Gadwall	183	120	126	112	228	114	104	68	155	131	186	1,527
Baldpate	57	59	31	71	73	72	64	76	87	96	68	754
Green-winged Teal	36	18	57	9	20	14	10	4	30	19	27	244
Blue-winged Teal	39	28	18	25	19	28	13	9	15	10	19	223
Shoveler	27	33	26	11	10	24	14	11	9	9	27	201
Pintail	75	63	88	131	108	94	63	25	49	64	67	827
Mottled	7	4	7	1	7	5	2	1	3	.....	.....	37
Redhead	.....	.....	.....	2	.....	.....	.....	.....	2	.....	.....	4
Canvasback	3	2	2	3	5	.....	.....	3	2	2	1	23
Lesser Scaup	21	18	22	3	3	17	19	60	84	94	65	406
Ringneck	4	3	15	10	19	8	6	4	9	13	.....	91
Ruddy	.....	.....	3	.....	1	.....	.....	.....	.....	.....	.....	4
Merganser	6	2	3	.....	3	.....	2	.....	4	.....	1	21
Other	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2
Total Ducks	476	362	417	395	518	391	317	266	458	445	469	4,507
Total Geese	2	.....	11	6	6	2	.....	.....	3	4	1	35
Total Coots	29	59	55	35	61	37	95	63	93	26	28	581
Grand Total	507	421	483	436	585	430	405	329	554	475	498	5,123

Information on wind velocity and direction taken from the weather station at Boothville, Louisiana for the entire 1967-68 waterfowl season indicates the prevailing winds on the lower delta were from a southerly direction and occasionally shifting to north and northwest. Tides remained well above normal as long as the winds were from a southerly direction. North and northwest winds were after accompanied by rain as this cold front moved into the area. As long as this frontal system remained the weather was clear and tides were well below normal, although heavy cloud cover was sometimes associated with this type of system.

Hunter success could be directly related to the weather conditions existing at that time on the lower delta, as this area is severely affected by tidal flow. Hunter success was highest with the south to southeasterly winds. Also, on the first day of a weather change, to a northerly direction hunter success was high. Each day this northerly wind persisted, tides were below normal and hunter success decreased.

Fog is typical on the lower delta in the early morning hours and late afternoon, but would dissipate shortly after daylight. Although on one hunt this condition lasted two days and greatly reduced the waterfowl kill and hampered boat travel. Hunt number 7 was delayed one day due to the severe fog on the river. The boats left Venice Saturday morning rather than Friday at noon.

The second reason for the heavy duck kill was that the marshes of the lower delta were in excellent condition due to the high river stage of last spring. Although the production of delta duck potato was not equaled to that of the 1966-67 crop, the aquatic production was excellent. As a result of this several hundred thousand waterfowl wintered on the Pass-a-Loutre this year. Waterfowl inventories conducted throughout the season indicates the peak wintering population of 165,000 duck and 40,000 blue and snow geese. This peak occurred in November and dropped to 76,000 ducks and 10,000 geese in December (Table 2).

In addition to the public camp hunting area the remaining portions of Pass-a-Loutre are open to hunters who have their own equipment. This open area consists of some 40,000 acres of the more remote sections of Pass-a-Loutre. Free permits are issued for the use of this area and hunting success equals that of the public camp hunting section. This area includes the marsh west of South Pass, north of Pass-a-Loutre and east of a line from Jackson Bayou on Pass-a-Loutre, along the north and east shore of Blind Bay and across Southeast Pass following the west shoreline of Red Fish Bay. Permits for each hunter using this area may be obtained by writing to the Refuge Division office in N.O.

Pass-a-Loutre hunters experienced one of the finest duck seasons in many years. Weather conditions were ideal for the most part and shooting was excellent.

Marsh conditions during the summer of 1968 were ideal for the establishment of dense stands of aquatic plants in all of the ponds on Pass-a-Loutre, and the high river stages experienced during the spring and summer deposited silt on the mud flats which in turn encouraged the growth of delta duck potato and fresh water

Table 2

PASS-A-LOUTRE WATERFOWL INVENTORY*

Transect and Total Count, 1967-68

Species	Sept.	Oct.	Nov.	Dec.	Jan.
Mallard	.....	1,000	1,500	3,000	500
Black Duck	.....	.....	.....	.....	.....
Gadwall	6,000	8,000	40,000	15,000	37,000
Baldpate	2,000	10,000	63,000	22,000	50,000
Green W. Teal	2,000	11,000	15,000	12,000	1,000
Blue W. Teal	8,000	2,000	4,000	2,000	2,000
Shoveler	1,000	3,000	6,000	5,000	8,000
Pintail	1,000	12,000	27,000	11,000	18,000
Mottled Duck	2,000	2,000	3,000	2,000	300
Wood Duck	.....	.....	.....	.....	.....
Redhead	.....	.....	.....	.....	.....
Canvasback	.....	500	1,000	1,000	100
Scaup	.....	1,000	3,000	2,000	4,000
Ringneck	.....	500	1,000	500	.....
Ruddy	.....	.....	.....	.....	.....
Merganser	.....	200	500	500	.....
Total	22,000	51,200	165,000	76,000	120,900
Canada Geese	.....	.....	.....	.....	**
Whitefront Geese	.....	.....	.....	.....	**
Blue & Snow Geese	.....	15,000	40,000	10,000	**
Total	.....	15,000	40,000	10,000	**
Coots	3,000	25,000	40,000	20,000	**

*Waterfowl inventory flown by Clark Hoffpauer, La. Wild Life and Fisheries Commission.
**Not censused.

three-square. It is anticipated that these conditions will again attract a large wintering population of waterfowl to Pass-a-Loutre for the 1968-69 waterfowl hunting season.

HOW TO APPLY

1. Make application direct to Larry McNease, Louisiana Wild Life and Fisheries Commission, 400 Royal Street, New Orleans, Louisiana 70130.
2. You may apply in a group not to exceed eight (8) persons, naming each person in the application.
3. No person may submit more than one application for each week. A second choice for the other hunt that week should be indicated, if possible, in this application. If the name of any person is received in more than one application for the same week, it will be disqualified.
4. You must make application for the hunts desired as specified below.
5. Be sure to specify the dates you wish to hunt, and your mailing address.
6. All applications must be made THROUGH THE U. S. MAIL and postmarked during the application dates for the hunt as listed in the table below.
7. The two-day hunting trip fee is $5.00. No refunds can be made if you fail to meet the boat; permits can be transferred. Enclose check or money order in full amount for your party. If not selected, full refund will be made.
8. Facilities limited to men over 16; persons under 18 must be accompanied by parent or guardian.
9. Seventy-two hunters can be accommodated on each hunt. Camps will be assigned by Commission personnel in charge.
10. No rifles, private boats or motors are allowed. DON'T BRING ANY!
11. Duck, goose, and coot shooting only is permitted. Waterfowl retrievers may be used.

*Application Period	Drawing	Hunting Dates
Nov. 25-Dec. 2	Dec. 5	Dec. 14 & 15; 17 & 18.
Dec. 2-Dec. 9	Dec. 12	Dec. 21 & 22; 28 & 29.
Dec. 9-Dec. 16	Dec. 19	Dec. 31 & Jan. 1; 4 & 5.
Dec. 16-Dec. 23	Dec. 30	Jan. 7 & 8; 11 & 12.

*Letters must be postmarked between these dates and received prior to drawing.

REVISED JULY 15, 1968

LOUISIANA FISH RECORDS

Fresh Water Records

BASS, LARGEMOUTH

11 11, Elwin Husser, Nov. 1958
11- 6, Zeke Davis, March 1962
11- 0, Robert Berry, March 1959
10- 6, Rufus Williams, Aug. 1956
10- 4, Nat Smith, 1958
10- 1, J. E. Stewart, 1957
10- 0, George Berger, Jan. 1960
10- 0, George Wilson, March 1950
9-14, Henry H. Harris, March 1964

BASS, SPOTTED (Kentucky)

4- 3, Carroll Perkins
2-15, Dr. Lyle St. Amant, Aug. 1965
2- 8, Lynn Knippers, May 1966
2- 4, Max Summers, June 1965
1-13, J. W. McFatter, April 1964

BREAM

2- 8, Grant M. Kelly, 1959
2- 2, Otis Marshall, May 1966
2- 1, Dee Murphy, April 1957
1-14, Fernin Grigsby, 1947
1-14, E. T. George, May 1967
1-11, Fred W. Elliott, April 1962
1- 9, W. E. Morley, July 1953
1- 8, Bob Scearce, Feb. 1954

CATFISH

46- 0, E. F. Whitteborg, June 1966

CRAPPIE (sacalait)

4- 4, Welzie Garrett, April 1950
3-14, Pat Cullen, March 1960
3-13½, Nellie Keller, Feb. 1964
3- 3, E. Lawrence Klein, April 1953
2-14, Leander Frey, April 1953
2-12, Mabel Slaton, April 1964

Salt Water Records

COBIA

149-12, Garnett L. Caudell, May 1965
82- 8, Harry Morris, May 1966
75- 0, James G. McMurry, May 1967
73- 0, Jack Dart, May 1954
68- 0, Robert G. Hebert, May 1964
66- 0, Joseph Boudreaux, July 1966
65- 9, R. L. Watson, Jr., May 1967
65- 0, Miss Pat Morvant, July 1962
64- 4, Watson Merrit, July 1956
62- 0, Joseph C. Cronan, July 1966
62- 0, Lloyd J. Derise, July 1967

AMBERJACK

83- 0, George Tucker, July 1959
75-12, F. C. Buchanan, June 1965
64- 4, Mrs. Harold Harleaux, July 1965
63- 0, Don Lyman, July 1958
62- 0, Mrs. Edwin Loe, July 1958
55- 0, Albert J. Waguespack, July 1965
54- 8, Raymond Miramon, Aug. 1963
53- 4, Albert Steen, July 1963
51- 8, Frank Ecker, Aug. 1963
49- 0, Myrton Landry, July 1967

BARRACUDA

40- 0, J. J. Jones, Sept. 1966
38- 4, Nolan McCraine, July 1967
37- 8, John Dofter, April 1965
37- 8, Richard Glynn, July 1965
36-12, C. F. Carter, Jr., July 1959
36- 8, Frank Heard, July 1958
35- 0, Myrton Landry, May 1967
34- 8, Frank Van Sickle, April 1965
34- 0, B. O. Hay, Aug. 1965

BONITO

24- 9, Stirling Couch, July 1949
23- 0, Charles Andres III, July 1949
20- 0, Mrs. Lester Plaisance, July 1959

JACK CREVALLE

40- 0, Edwin F. Stacy, Jr., July 1953
35-12, L. J. Sanders, July 1966
35-10, Courtney Linn Slatten, Sept. 1967
34- 0, L. E. Hawsey, July 1951
32- 8, H. D. Hecht, May 1953
32- 8, S. D. Jastremski, July 1959
31- 0, Chip Young, Sept. 1966
29- 8, John E. Kentzel, June 1958
26-10, Jim Falkner, Sept. 1964

MARLIN, BLUE

565- 0, Al R. Childress, Jr., Aug. 1966
515- 0, Ben F. Vaughan III, May 1964
515- 0, Wm. Good, Tie, June 1968
503- 0, Clyde V. Hawk, Aug. 1967
500- 0, Clyde Hawks, July 1968
498- 8, Dennis L. Good, July 1967
497- 8, Duke Shackelford, June 1966
494- 0, Guy C. Billups, Jr., July 1966
493- 8, John L. Moreau, Aug. 1967
463- 8, Jim Meriwether, July 1958
443- 8, Harley B. Howcott, June 1967

MARLIN, WHITE

134- 0, Dennis L. Good, July 1967
110- 8, George M. Snelling III, May 1968
103- 0, Mrs. Al R. Childress Jr. May 1967
100- 0, William L. Manning, July 1966
99- 8, Harley B. Howcott, July 1967
95- 8, Mrs. Mary Smith, May 1964
94- 8, DeWitt Rackley, Oct. 1967
93- 0, Dennis Good, June 1968
92- 0, Clyde Hawk, July 1959
92- 0, Harley B. Howcott, July 1966
90- 0, Charles Schwing, July 1958

KING, MACKEREL

58½ Ray Cox, Aug. 1968
55- 0, George E. Marcuse, Nov. 1964
51- 0, Buddy Pons, July 1960
50- 8, Frank Petit, July 1960
50- 8, Raymond Ball Jr., Aug. 1965
48- 4, Larry Johnson, Aug. 1963
46- 0, James A. Disman, Nov. 1965
37- 8, Myrton Landry, July 1967

MAKO SHARK

280- 0, Leander H. Perez Jr., Aug. 1967
179- 8, Gen. Raymond Hufft, May 1966
179- 8, Guy C. Billups, Jr. Aug. 1966
179- 0, Guy C. Billups Jr., May 1968

DOLPHIN

56-12, Wayne Plaisance, June 1968
54- 0, August Perez, Jr., July 1966
53- 8, Clyde V. Hawk, June 1967
51- 0, Robert Sharp, June 1965
50- 4, C. M. Falcon, May 1967
50- 0, Harley B. Howcott, May 1962
50- 0, Harley B. Howcott, May 1966
49- 0, Dr. M. E. Brierre, June 1967
47- 8, Bob Breazeale, July 1960
44-12 George Snellings III, July 1967

FLOUNDER

11- 1¼, Clarence Craig, Nov. 1967
11- 0, Lee W. Coulon, Nov. 1967
11- 0, George E. Stevens, Nov. 1967
10- 0, Richard J. Boll, Jr., July 1965
8-10, Paulton Hebert, Oct. 1958
8- 8, Gerald Fatzer, Oct. 1952
7- 9, Carla Guidry, July 1695
7- 8, George Battle
7- 3, C. J. Griffin, July 1965

MACKEREL, SPANISH

6- 8, Al Hoeke, Oct. 1959
6- 8, Leroy P. Wilson, July 1966
6-4½, Roger P. Greene, Sept. 1965
6- 2, Wallace R. Rosenthal, July 1966
6- 1, Carlo Montalbano, Oct. 1965
6- 0, E. W. Montgomery, 1954
6- 0, Loyd J. Lerillex, July 1966
5-12, Harold Staples Jr., July 1963
5- 6, Joe Temento, July 1962

BLUEFISH

10- 6, Ken Rushing, July 1968
9-12, Ken Rushing, July 1968
9- 7, Eugene P. LeCompte, March 1967
8-13½, Patrick W. Burke, Sr., Feb. 1966
8- 7, Patrick W. Burke, Sr. Feb. 1966
8- 5¼, Patrick W. Burke, Sr. Feb. 1966
8- 1, Dwight Andrus, Jr., Sept. 1965
7-12, Edmond Gonzales, Jan. 1965
7- 8, S. E. Pons, Jr., July 1965
7- 8, J. Tomeny, July 1967

TUNA, BLACKFIN

18- 0, Franklin C. Fisher Jr., Aug. 1966
16- 4, Mrs. J. R. Gandy, Sept. 1964
15- 0, Robert Levert Jr., Aug. 1963

POMPANO

6- 3, Louis U. Thornton, March 1967
5- 9, Bill Duffy, Jan. 1964
5- 9, H. H. McCain, Dec. 1953
5- 8, Tony Sebastian, Jan. 1955
4-15, Robert J. Hote, Dec. 1967
4- 7, Robert H. Weigand, Jan 1968
4- 4, Gus Delahoussaye, Sept. 1965

REDFISH

56- 8, O. L. Comish, Sept. 1963
45-12, Joseph Vetrano, Oct. 1957
43- 0, Sylvia Theriot, July 1959
42-10, J. Edward Slatten, Jr. May 1967
42- 0, John Fischtzier, July 1959
40- 8, Dale Messina, July 1959
40- 0, John E. Kentzel, July 1961
39- 4, Dr. Henry LaRocci, July 1957
37- 8, Dr. Louis Capozzoli Jr., March 1963
35- 0, A. G. Henriksen, Oct. 1966

SHEEPSHEAD

11- 8, Mrs. Aubrey Bares, 1955
11- 8, Steven Troesch, Dec. 1956

SAILFISH

96- 0, John Lauricella, Oct. 1953
85- 0, Arnold A. Domin, July 1965
80- 0, Dennis L. Good, Oct. 1967
78- 8, Dr. Jerry R. Smith, June 1968
77- 8, Tim Sebastian, July 1964
77- 0, Mrs. Camille Cazadessus, Sept. 1958
71- 0, Earl J. Markey, Sr., June 1967
70- 4, Harry Smith, July 1959
66-12, Dr. John R. Chadwick, June 1967
66- 0, Jeanne M. deBarillas, July 1967

SNAPPER

74- 0, Jim Meriwether, Oct. 1963
35- 0, Marvin E. Griffin, Aug. 1967
29-12, Albert Pusch, Aug. 1967
26- 4, Lamar Simmons, July 1967
24-10, Harold Aubry, Sept. 1966
24- 4, George J. Derise, Sept. 1966
24- 0, Roy A. Touchard, July 1966

TRIPLETAIL

39- 8, Mrs. Jimmy Toups, July 1959
33- 0, Bob Moran, June 1953

TUNA, BLUEFIN

440- 0, Jim Meriwether, May 1963
120- 0, Pete Menefee, July 1966

SPADEFISH

8- 3, Charles Sebastian, Aug. 1963
6-15, Sam Sharp, July 1966
6-10¼, Robert J. Hote, Aug. 1966
6- 4, Wayne Spencer, July 1966
6- 2, Lawrence Chouest, July 1961
6- 0, Richard Glynn, July 1962
5-10, Henry Cook, July 1959
5-10, George A. Donalson, July 1968
5- 8, Louis P. Wolfort III, July 1967
5- 7, W. J. Theriot, July 1965
5- 7, Mrs. Steven Hebert, July 1965

TARPON

198- 8, Oswald Frey, Sept. 1951
183- 0, Mark Brown, July 1935
166- 0, Schuyler Thibodeaux, Aug. 1965
164- 4, John Brady, June 1965
163- 8, David Willoughby, Sept. 1966
161- 0, Ned McGehee, July 1953
156- 8, Robert Phillips, July 1954
155- 4, Mrs. E. M. Egle, Aug. 1962
115- 4, E. A. Adams, Oct. 1967
154- 4, Mrs. Richard Carrere, July 1950

TROUT, SPECKLED

12- 6, Leon Mattes, May 1950
9-12, John W. Burns, March 1968
9- 4, Joseph E. Frey, April 1967
9- 3, Judge Charles F. Gallo, April 1968
9- 2, Jack Burniston, Aug. 1956
9- 0, Walter E. Tabony, Oct. 1967
8-10, T. E. Fortson, July 1957
8- 2, Mrs. A. J. Hughes, Nov. 1956
8- 2, Bernard C. Frischhertz Sr., April 1967
8- 0, Lloyd J. Amedee, June 1954
7-12, George A. Bollinger, April 1968

TUNA, YELLOWFIN (Allison)

196- 8, Guy C. Billups Jr., May 1966
196- 0, Clyde Hawks, June 1968
181- 0, Richard H. Braud, June 1966
180- 0, Clyde V. Hawk, June 1966
174- 0, Homer John Moore III, 1964
161- 0, Harley B. Howcott, July 1965
160- 0, Charles Duchein, Oct. 1960
155- 0, Kingsley Bodman, June 1957
150- 8, James M. Trotter, July 1967
150- 0, Douglas Manship, June 1966

WAHOO

110- 0, Mrs. Bud Moore, 1964
90- 9, Clyde Hawks, July 1968
76-12, Ed Hamilton, July 1963
70- 8, Alfred Hitter, Jr., June 1968
70- 3, Harley B. Howcott, Jr., July 1963
70- 0, Clyde Sharp, May 1960
65- 0, Clyde V. Hawk, Aug. 1967
64-12, W. C. Scheppegrell, July 1963
62-12, William Good Jr., July 1966
60-12, Nick C. Bouzon, 1958

CROAKER (Atlantic)

4-14, Joseph D. Toups, Jr., 1966
3-10, George H. Koch, June 1968
3- 8, Salvador Cusanza, May 1964
3- 7, A. D. Pike Jr., March 1964
3- 4, Fred A. Ehland, Oct. 1967
2- 8, Hilary Turlich, Aug. 1968

SCHEXNAYDER NAMED AGENT OF THE YEAR

HAROLD SCHEXNAYDER of Sorrento, wildlife agent with the commission for 20 years, was selected as "Outstanding Agent" in the Enforcement Division for the year 1967.

Schexnayder will represent the Louisiana Wild Life and Fisheries Commission at the Southeastern Association of Game and Fish Commissioners in Baltimore, Maryland, October 20-23. At that time he will be presented a plaque of recognition for his many years of service to the commission and for his outstanding achievements in 1967.

Agent Schexnayder made 85 cases in 1967 and as of mid-June in 1968 had made 30 cases. These consisted of motorboat violations, fishing without a license, frog hunting violations, hunting out of season, night hunting, illegal nets and traps, and fish shocking cases.

In addition to his regular duties as an enforcement agent, Schexnayder is a good public relations man for the commission and participates in many activities that lend to the prestige of the organization.

He was born and raised at Grand Point in St. James Parish, later moving to Sorrento. Schexnayder is married and the father of five children.

Aside from his interest in wildlife and law enforcement, Schexnayder is noted for his cooking and generously lends his aid to sportsmen's organizations and other groups.

42-48-1968

Oysters, Water Bottoms and Seafoods

Ted B. Ford

THIS DIVISION is the oldest functioning branch of the Commission and, as a matter of fact, its organization—initially in the 1870's as the "Oyster Commission"—represented the first efforts in the State directed toward the control of Louisiana's natural renewable resources. Over the years it has evolved into a diversified marine fisheries dealing with the resources included in its name.

The Division is organized as follows: a division headquarters which includes the administrative functions dealing with oyster leases, seismic operations, sand, shell and gravel permits and leases, coastal waste control activities and biology activities—research, management and development. During this 20-year period numbers of personnel have increased and there has been a realignment in the types of job positions. In 1948, there was a single biologist employed full time by the Division. In addition, the Division had a contract which provided for a specific short term study of oyster mortalities. Since that time, the biological and technical staff of this Division has increased to a current level of twelve technically trained people. The Oyster Lease Survey Section has been expanded to provide for several engineering aides who now serve that purpose.

The primary biological effort is centered at the Marine Laboratory located on Grand Terre Island. The program is supported by a biological staff working coastwide in six established study areas. The Division maintains four camps in the coastal marshes for purposes of checking out of state boats and crews fishing in Louisiana waters, overseeing oyster seed ground reservations, etc. These are located at Grand Pass, Bay Gardene, Sister (Caillou) Lake, and Sabine Pass. All other activities of the Division and its personnel are considered to be mobile either by car or boat. Aerial patrol and enforcement supplements the water borne effort.

In the late 40's the Division operated on a budget of approximately $225,000. Presently, the Division's level of operation is approximately five times larger, some $1,250,000.00. This includes a recently enacted Federal Aid Program entitled "Commercial Fisheries Research and Development Program." This state's allocation of Federal Aid funds, matched with State funds either on a 25%-75% basis or a 50% basis, depending upon the nature of the project, is $246,000.00. This program provided for a coastwide expansion of research, management and development activities.

Operating and matching funds for this Division are derived from dedicated receipts obtained from royalties on clam and oyster shells dredged from the water bottoms of the State.

One of the great natural resources of Louisiana and the United States is the extensive coastal marshes and adjacent water area covering 4,500,000 to 5,000,000 acres. The relatively shallow, flat, gently sloping near offshore area represents substantial acreage of additional Fisheries' area. The area between the seashore and the fresh water swamps and marshes of the interior comprises a brackish water zone. Brackish water is salt water ranging between fresh water and sea water. At one time, the coastal area was characterized as having a narrow salt band, a wide brackish band, and a narrow fresh band of marsh. In recent years this has been altered to some extent whereby the salt band is increasing in size due to salt water intrusion. The brackish water zone is often referred to as Louisiana's great marine nursery ground. This area is characterized by its dynamic constantly changing conditions within a range between high and low salinity waters.

Estimates suggests that 85% to 90% of the marine fishery products landed here are dependent upon this estuarine area during some stage of their life history. The annual value of these fishery products appears to be in the range of $100,000,000. Thus, its importance to the State is obvious.

Competing for use of this area has been the exploitation and development of the oil, gas and mineral resources. These developments have required attendant navigational channels, well location sites, and pipelines for handling this valuable production. However, such developments appear to have contributed substantially to drastic changes in the lakes, bayous and marshes. We suspect that some of these changes are quite gradual, taking place so slowly that our diagnostic procedures cannot readily detect them. These man-caused changes are not to be confused with geological changes which are either catastrophic, occurring abruptly, or long-term, over thousands of years.

In 1957, it was observed that the effect of the Flood Control Program carried out by the U. S. Army Corps of Engineers during the past 30 years had seriously affected the oyster and shrimp industry. Impoundment of waters in upper river areas, the diversion of waters of the Mississippi to the Atchafalaya Floodway and the regulation of flow primarily for the navigational interest seems to have curtailed the natural high water overflow periods and distribution of fresh

water into the coastal marshes adjacent to the lower Mississippi River.

Seismic activities probably peaked in the early to mid-50's with the rapid development of oil exploration in coastal Louisiana, both inshore and offshore waters. Recognition of the problems in this area arising from geophysical operations, laying of pipelines and the dredging of canals in this area emphasized the need in 1953 to develop orderly procedures for minimizing damages to this valuable environment. Progress has been achieved toward this end, but much remains to be done. This will require a continuing substantial effort on the part of fish and wildlife interests, flood control interest and industry, to curtail salt water intrustion, to provide for a good distribution of fresh water from the river and to maintain this productive environment in natural conditions.

The need for oyster seed ground reservations was recognized in the late 40's in order to provide a source of seed oysters for the industry. Accordingly, oyster seed ground reservations were established in places, such as, Sister (Caillou) Lake, Bay Junop, Lake Felicity and Bay Gardene. The Lake Felicity Reservation was unsatisfactory due to salt water intrusion, while the others have worked satisfactorily. Recognition of the need for seed oysters to maintain the industry caused the setting aside of the extensive natural reefs east of the Mississippi River which has come to be known as the "Red Line Area" in which no leases are now issued.

Shell planting for oyster cultch—material for young oysters to set on—has been practiced for a number of years. Even with a sizeable shell planting operation, it is recognized that this can only supplement the available seed oysters but can in no wise meet all of the existing needs. Management practices developed over several years provide that oyster seed ground reservations function best when opened on an alternate year basis. The reason is that these areas being relatively small in size cannot sustain a year-after-year harvest of seed oysters in providing the quantity and quality desired by the industry.

In the late 40's it became evident to the oyster industry that their culture practices would have to be altered due to changes in the environment, such as, salt water intrustion, alteration of currents, predation by the oyster conch and parasitism. These problems seem to be associated chiefly with increasing salinities. To offset these problems, many of the fishermen began planting seed oysters on fattening beds in the fall and harvesting them by the following spring. In the lower salinity areas, the fishermen could carry oysters for a longer period of time, much as they have previously done without the fear of predation.

High oyster mortalities experienced in the mid 40's resulted in extensive oyster investigations. These investigations indicated that high salinities accompanied by high summer temperatures caused the fungus, *Dermocystidum marinum*, and the conch, *Thais hemotoma*, to cause high mortalities. Much good work was performed which established future guidelines for management practices. Additionally, a pilot program was established to investigate the feasibility for the introduction of fresh water from the river. The Bayou Lamoque fresh water diversion structure was installed on the east bank below New Orleans and evaluated. It was determined that this procedure was feasible and resulted in good increases in the number and quality of seed oysters in that local area.

A study was established to evaluate the production of seed oysters in the Sister Lake Reservation after a high level of production virtually played out. This study determined that the only feasible means at this time and under the existing conditions was to open the area for obtaining seed oysters on an alternate year basis since it could not support sustained annual yields.

Additional studies were carried out on the influence of oil and its derivatives on oysters. It was determined that oil was detrimental to oysters and that the oysters would pick up oil from the water. Such oysters were unpalatable and unsalable. Other attendant studies for the oyster industry dealt with the influence of exploration for oil and defined procedures which would minimize the influence on the oyster industry. Such procedures are actively pushed by this division.

Louisiana experienced a major reduction in shrimp landings in 1957. A modest research program suggested some causative factors which could not be confirmed. Then in 1961, all of the Gulf Coast States experienced substantial reduction in shrimp landings. Great concern among the industry and the conservation groups of each of the Gulf States stimulated a substantial Gulf-wide interest in accounting for these reductions. It was the beginning of an expanded research effort which has provided substantial knowledge and benefits to the industry in subsequent years. However, by 1963 no research carried on by this State or the Federal agencies was able to pin point the reasons for the low production experienced in 1957 and again in 1961. Initial research established several parameters which effect shrimp populations in Louisiana waters. At this time, we believe that we have a good understanding of factors which influence the brown shrimp and better understand its life history in these waters. Much remains to be learned about the white shrimp in order to understand it at the same level. Accordingly, our efforts are being directed toward this end. Within the past three years, a coastwide effort was initiated with a substantial biological sampling program dealing with the coastal estuaries.

Pond cultivation studies on shrimp were initiated at the Marine Laboratory in 1962 in a single 1/4 acre pond. By 1965, seven 1/4 acre ponds and two smaller and deeper ponds were constructed. In order to provide for an expansion of pond culture studies, whereby we hope to learn much about several of our more economically important marine species, sixteen additional 1/4 acre ponds were constructed in 1968. This

research has consisted of stocking post-larval and juvenile shrimp to determine what numbers and foods are satisfactory in this culture program.

One of the most gratifying aspects of research activities is the application of management principles based on sound knowledge. Shrimp research has provided information which is of interest to the shrimp industry. Since 1962 annual meetings have been held at which all available information was presented to representatives of the industry in advance of the spring season. They were given our appraisal of the data which indicated the relative abundance of the brown shrimp crop and the best time to open the season for its harvest. As a result of this, industry has been better able to gear its operations for handling each year's brown shrimp production.

In 1959 a short term crawfish management research project was initiated. This project demonstrated the feasibility of crawfish farming and helped define future work that would be necessary for sustained annual production. This work is now being continued by the Freshwater Fisheries Section of the Fish and Game Division.

The menhaden industry comprises a segment of Louisiana's commercial fishery. An initial effort was made to study this important species as well as other industrial fishes. The research of the literature phase has been completed. A defined research program should be initiated within the next few years.

A broad scale estuarine research program was initiated in 1966. This program is comprised of four phases as follows: (1) Area Description, (2) Hydrology, (3) Sedimentology, and (4) Biology. This study will provide excellent knowledge of our estuarine resources and is scheduled for completion in 1970.

The Coastal Waste Control Program was initiated in 1946 as a result of an opinion issued by the Attorney General's office and was set up as a section of the Division of Oysters and Water Bottoms to enforce the rules, regulations and orders of the Stream Control Commission. One boat was put in service in March and the other in April of 1947. Bayou Lafourche was established as the dividing line between the areas assigned these two crews, extending from the oil fields in the Delacroix Island area to those of Lake De Cade and Dog Lake in the west. Subsequently, in 1954 one boat was replaced with the boat "CWC-I" and the other team was phased out shortly thereafter due to lack of personnel. Later in 1959, the boat "CWC-II" with a new crew was placed in service. Then, the dividing line was changed to the Mississippi River since there had been substantial development of oil producing units east of the river. This surveillance has been maintained on an annual basis through June 30, 1968.

Effective July 1, 1968, this activity was transferred and assigned to the Water Pollution Control Division. However, personnel of the Oysters, Water Bottoms and Seafoods Division will continue to assist the Water Pollution Control Division in the tremendous effort of surveillance which is required as a result of the extensive development of oil, gas, and mineral resources in the coastal marshes of Louisiana because of the influence on valuable marine fisheries.

Two major hurricanes and two lesser hurricanes have hurt the facilities of this Division within the past twenty years. One was Hurricane Hilda in October, 1964, which hit the Sister Lake camp and caused substantial damage. The other was Hurricane Betsy in September, 1965, which extensively damaged the Marine Laboratory on Grand Terre Island and the Bay Gardene Oyster Reservation Camp. Other facilities were damaged to a much lesser extent.

This was a particularly devastating storm which passed over the heart of the oyster growing region effecting nearly all of the seed grounds which comprise approximately 450,000 acres, and approximately 30%, or 40,000 acres, of the private leases on the east side of the river. On the west side of the river, some 50,000 to 60,000 acres of leased water bottoms representing some 50-60% of the private leases of the State experienced considerable damage too. Hurricanes Audrey (1957) and Flossy (1956) did approximately $6,000 worth of damage to division camps.

In conclusion, after reviewing twenty years of steady progress, it is increasingly evident that considerably more work must be performed. Within the past few years, this area and the Country at large have experienced substantial growth in population. Sociologists and marine biologists have predicted for a number of years that we must turn to the sea for the production of high quality protein if we are to feed and maintain this increased population in good health.

The marine fisheries of Louisiana and their ultimate potential constitute one of this State's major industries. In order to meet these immediate and future needs, it is mandatory that the technical staff of this division be increased by some 15 in number within the next two years with an overall total increase in technical personnel of 30 within the next five years. This increase in technically trained personnel would require approximately twice as many support personnel.

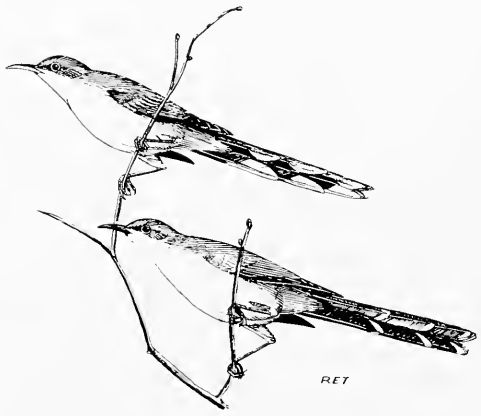
The marine fisheries industry of Louisiana as well as other parts of the Country is facing serious problems in that there are forced changes in the handling of labor and products, and this industry must be able to compete. Therefore, it needs considerable support in streamlining many of the age-old practices so that maximum advantage can be taken of the available labor pool, sophisticated instrumentation and improved management practices, to mention some. An industry such as this should certainly be supported by a research, management and development program on the order of 8 to 12% of the value of the value of the industry. We certainly recommend this. ✠

The Bird of the month

Charles R. Shaw

YELLOW-BILLED CUCKOO

Coccyzus americanus



THE YELLOW-BILLED CUCKOO, more commonly known as the "Rain Crow" in our state, is a common resident, while its close relative, the Black-billed Cuckoo, is a transient migrant which shows up briefly in the spring and again in the early fall, particularly in September and October.

These cuckoos are long slender birds with noticable long tails and slightly curved bills, with the lower mandible being a rich yellow color in the Yellow-billed Cuckoo, whence the name. This is the upper of the two birds shown in the illustration. The upperparts are an olive-grey or tannish color while the underparts are white. The reddish-brown primaries show rather distinctly, especially in flight. The long tail has black outer feathers, broadly tipped with white and this is one of the marks used to distinguish this bird from the very similar Black-billed Cuckoo. Although probably not noticable to the casual observer there is a family characteristic present in both species in that two toes point forward and two toes point backward rather than the usual form for songbirds in which three toes point forward and one points backward.

The Black-billed Cuckoo, the lower bird in the illustration, differs primarily in that the entire bill is black and the black outer tailfeathers are narrowly and inconspicuously tipped with white.

Although some cuckoos in other parts of the world have achieved a dubious fame by depositing their eggs in other birds nests and thus avoiding the arduous work of rearing a family, the Yellow-billed Cuckoos do build their own nests and rear their own young, although occasionally they may drop an egg in another cuckoo's nest. These slender birds are very shy and not often seen, except when flying from the cover of one leafy tree to the next with their characteristic sinuous flight. In fact they are probably heard much more than they are seen even though they do not have a really musical song but utter a series of notes such as cuk cuk cuk cuk, etc. not even sounding like cuckoo at all.

The nest is a rather loosely formed affair made of twigs and usually placed on a horizontal branch not more than a few feet from the ground. It is generally poorly constructed and often the eggs may be lost by rolling out or even falling through the flimsy slight structure. The eggs are pale greenish-blue in color and usually number from 3 to 6 in a clutch.

These are insectivorous birds with their primary food during the summer consisting of various types of caterpillars, many species of which are very harmful to agriculture and/or forestry. Although many types of birds do not like to feed on caterpillars due to the bristly and sometimes poisonous spines with which they are covered they seem to be the favorite food for the cuckoos which consume them by the hundreds daily. For this reason alone these birds deserve our admiration and also the protection which is afforded by state and federal laws. ✻

RETURN REQUESTED
Louisiana Wild Life and Fisheries Commission
400 Royal Street
New Orleans, Louisiana 70130

Photo by Bob Dennie

RABBIT HUNTING IN LOUISIANA IS TOP SPORT

Man and Beagles

Louisiana offers sportsmen a generous season and bag limit on cottontails. Beginning on October 5 and running through February 16 the rabbit season offers plenty of time for all kinds of action. The daily bag limit on rabbits is eight with a possession limit of 16.